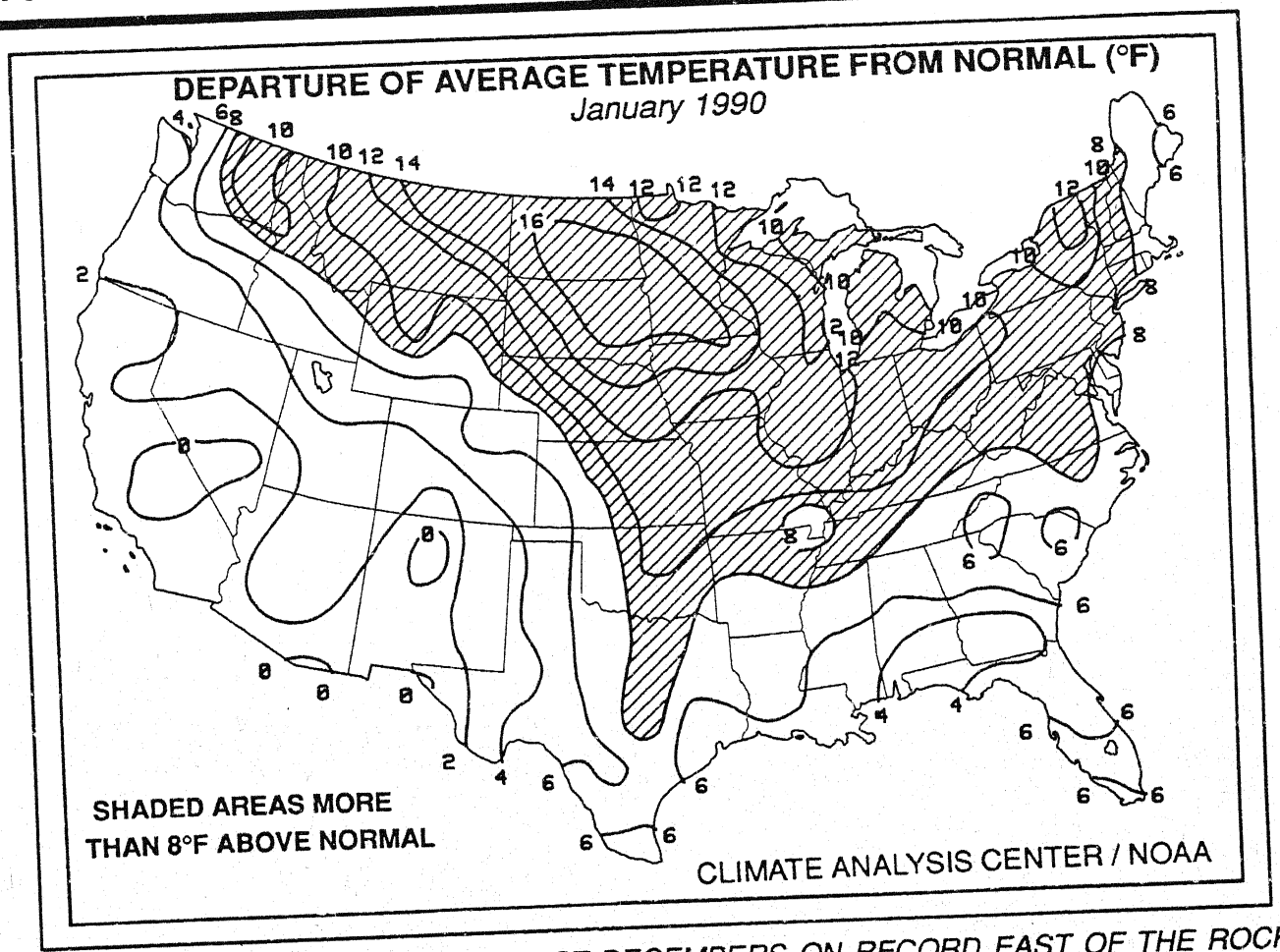
CLIMATE ANALYSIS CENTER

CONTAINS:
JANUARY 1990
UNITED
STATES
CLIMATE
SUMMARY

WEEKLY CLIMATE BULLETIN

No. 90/05 Washington, DC February 3, 1990



AFTER ENDURING ONE OF THE COLDEST DECEMBERS ON RECORD EAST OF THE ROCKIES, WINTERY WEATHER RETREATED NORTHWARD AS THE CONTIGUOUS U. S. EXPERIENCED THE MILDEST JANUARY EVER. WHILE DECEMBER 1989 TEMPERATURES AVERAGED BETWEEN 8°F AND 16°F BELOW NORMAL IN THE NORTHEASTERN QUARTER OF THE NATION, JANUARY 1990 DEPARTURES EXCEEDED +8°F ACROSS MOST OF THE NORTHERN HALF OF THE COUNTRY. FOR ADDITIONAL DETAILS, REFER TO THE U. S. MONTHLY CLIMATE SUMMARY BEGINNING ON PAGE 11.

UNITED STATES DEPARTMENT OF COMMERCE

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

NATIONAL WEATHER SERVICE–NATIONAL METEOROLOGICAL CENTER

CLIMATE ANALYSIS CENTER

WEEKLY CLIMATE BULLETIN

This Bulletin is issued weekly by the Climate Analysis Center and is designed to indicate, in a brief concise format, current surface climatic conditions in the United States and around the world. The Bulletin contains:

- Highlights of major climatic events and anomalies.
- U.S. climatic conditions for the previous week.
- U.S. apparent temperatures (summer) or wind chill (winter).
- U.S. cooling degree days (summer) or heating degree days (winter).
- Global two–week temperature anomalies.
- Global four–week precipitation anomalies.
- Global monthly temperature and precipitation anomalies.
- Global three–month precipitation anomalies (once a month).
- Global twelve–month precipitation anomalies (every three months).
- Global three–month temperature anomalies for winter and summer seasons.
- Special climate summaries, explanations, etc. (as appropriate).

Most analyses contained in this Bulletin are based on preliminary, unchecked data received at the Climate Analysis Center via the Global Telecommunications System. Similar analyses based on final, checked data are likely to differ to some extent from those presented here.

STAFF

Editor	David Miskus
Associate Editor	Richard J. Tinker
Contributors	Vernon L. Patterson
	Monica L. Pogue
	Paul Sabol
Graphics	Robert H. Churchill

*To receive copies of the **Bulletin** or to change mailing address, write to:*

Climate Analysis Center, **W/NMC53**

Attn: WEEKLY CLIMATE BULLETIN

NOAA, National Weather Service

Washington, DC 20233

For CHANGE OF ADDRESS, please include a copy of your old mailing label.

Phone: (301) 763–8071

WEEKLY CLIMATE BULLETIN REQUEST

☐ **Please ADD my address to your mailing list.**

☐ **Please CHANGE my address on your mailing list.**

☐ **Please DROP my address from your mailing list.**

Name _____

Organization _____

Address _____

City _____ State _____ Zip _____

GLOBAL CLIMATE HIGHLIGHTS

MAJOR CLIMATIC EVENTS AND ANOMALIES AS OF FEBRUARY 3, 1990

Eastern United States:

SPRING–LIKE WARMTH CONTINUES.

ıough temperatures in south–central Canada and the northern Great ins finally dropped to more seasonable levels, mild weather ained dominant across most of the eastern third of the U.S. as peratures averaged up to 9°C above normal. Many daily record imums were set as highs above 21°C were common across the hern half of the region [5 weeks].

Western United States:

SCATTERED PRECIPITATION SLIGHTLY EASES DRYNESS.

derate precipitation (between 20 and 50 mm) reduced long–term sture deficits across the northern half of California while lesser ounts (<20 mm) in southern California and the Great Basin igibly affected the dryness [10 weeks].

outhern United States:

VERE WEATHER OUTBREAK DRENCHES REGION AGAIN.

nse spring–like thunderstorms generated hail, strong winds, several adoes, and inundating rains. The Tennessee and lower Mississippi eys received 150 to 270 mm of rain while the remainder of the on recorded between 50 and 150 mm. Widespread urban and river ding continued to plague the area, which has now measured up to mm of rain since January 1 [3 weeks].

entral South America:

–SUMMER WARMTH AND SEVERE FLOODING REPORTED.

vy thunderstorms dropped up to 300 mm of rain across the hern half of Argentina while hot weather re-developed across the re area. Highs exceeded 41°C in parts of Argentina while peratures averaged 4°C to 6°C above normal in Uruguay and hern Brazil [2 weeks].

entral and Soviet Europe:

MILD WEATHER SETTLES ACROSS REGION.

t of the eastern half of Europe recorded temperatures between 5°C 12°C above normal while a large portion of the Baltic States and hern Scandinavia have experienced departures above +6°C for three essive weeks [3 weeks].

6. *Southeastern Europe*:

PRECIPITATION DEFICITS CONTINUE TO GROW.

Between 30 and 50 mm of precipitation were observed in portions of the Alps and southern Yugoslavia, but less than 10 mm were reported elsewhere as extremely dry weather remained firmly entrenched [10 weeks].

7. *Southeastern Africa and Madagascar*:

HEAVY TROPICAL RAINSHOWERS PERSIST.

The 1989–90 rainy season remained wetter than usual across Zimbabwe, Zambia, the eastern coast of Madagascar, and the Agalega Islands as 70 to 150 mm of rain drenched those areas while up to 250 mm inundated the Seychelles. In contrast, most of Madagascar and Mozambique received more moderate amounts (between 30 and 60 mm) [5 weeks].

8. *Indonesia, Northern and Western Australia*:

RAINFALL TAPERS OFF.

North–central and western Australia dried out as less than 30 mm of rain were recorded. Farther north and east, moderate totals of 70 to 150 mm dampened western Indonesia while 90 to 250 mm of rain kept the northern Cape York Peninsula, eastern Papua New Guinea, and the Solomon Islands wet [Ending after 3 weeks].

9. *Northeastern Australia*:

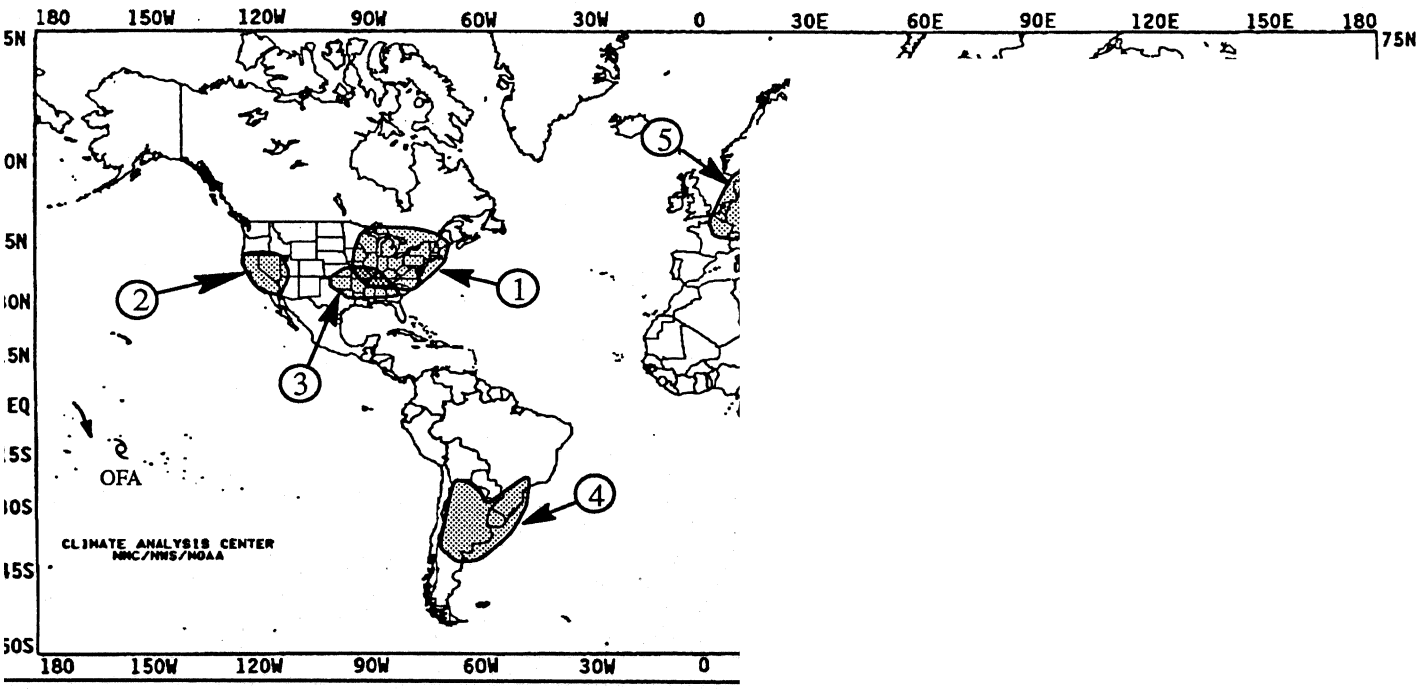
LIGHT RAINS EASE DRYNESS SLIGHTLY.

Generally 10 to 50 mm of rain fell across the region as longer–term moisture deficits were only slightly diminished [7 weeks].

10. *Southeastern Australia*:

TROPICAL STORM SAM CREATES WIDESPREAD FLOODING.

Coastal locations in eastern New South Wales were deluged as Tropical Storm Sam moved into the area and dissipated. The storm dropped anywhere from 150 to 450 mm of rain from Goulburn northward to Brisbane, generating coastal, urban, and river flooding [Episodic Event].



EXPLANA

TEXT: Approximate duration of anomalies is in brackets. Precipitatio

MAP: Approximate locations of major anomalies and episodic event temperature anomalies, four week precipitation anomalies, lon

UNITED STATES WEEKLY CLIMATE HIGHLIGHTS

FOR THE WEEK OF JANUARY 27 THROUGH FEBRUARY 3 , 1990.

Stormy weather battered the northwestern, southern, and northeastern sections of the U.S. while unseasonably mild conditions persisted in the eastern half of the country for the fifth consecutive week. A series of storms in the Pacific Northwest brought high winds and copious rainfall to coastal locations and heavy snows to the Cascades, but minimal precipitation to southern California. Waves of low pressure tracking along a slow–moving cold front triggered intense showers and thunderstorms in the south–central Great Plains, the lower Mississippi, Tennessee, and lower Ohio Valleys, and the central Appalachians. In the colder air farther north, heavy snows early and late in the week blanketed parts of western and northern New England. Bitterly cold Arctic air enveloped much of Alaska while Hawaii observed slightly above normal temperatures and heavy showers over the eastern islands.

As the week began, strong winds and heavy precipitation pounded the Pacific Northwest as a storm system moved onshore. Farther east, winds gusting up to 70 mph blasted parts of the northern and central Rockies and High Plains. A low pressure center located in southern Louisiana slowly tracked northeastward along a stationary front, dropping light rain on most of the Southeast and mid–Atlantic and frozen precipitation on parts of the Midwest and central Appalachians. The low pressure center gradually moved off the Northeast coast early Tuesday, but not before burying northern New England with up to 20 inches of snow. By late Tuesday, another storm system entered the Pacific Northwest, generating heavy precipitation and high winds across much of the region.

By mid–week, wintry conditions paid a visit to the northern Plains and upper Midwest as the first Pacific storm system quickly migrated eastward and funneled bitterly cold Arctic air into the area. The second Pacific storm system tracked southeastward into the Southwest, producing up to a foot of snow in the mountains of Arizona and Utah. As the system pushed eastward into the southern Great Plains, severe weather broke out in the south–central U.S. Torrential downpours, gusty winds, small hail, and a few tornadoes hit southern and eastern Texas, southeastern Oklahoma, Arkansas, and Louisiana. Farther north, freezing rain, sleet, and snow glazed sections of the central Great Plains and Midwest. Meanwhile, a cold front approached the Pacific Northwest while an upper–air disturbance dumped additional snow on the mountains of the Southwest.

During the latter part of the week, the storm in the southern Great Plains tracked northeastward, creating strong thunderstorms in the South, dumping heavy rains on the Tennessee and lower Ohio Valleys, and producing frozen precipitation from Kansas northeastward into northern New England. The cold air in the north–central states was displaced eastward into New England while mild southwesterly flow returned to the northern Rockies and Plains. Farther west, the cold front advanced eastward, spreading rain and snow across western Washington and Oregon and northern California. By Saturday, the upper–air disturbance in the Southwest had progressed eastward into the lower Mississippi Valley, perpetuating another round of severe weather and heavy rains in the Southeast.

According to the River Forecast Centers, the greatest weekly precipitation amounts occurred in the lower Mississippi and Tennessee Valleys (up to 10.6 inches), in the northern Cascades, and along the Pacific Northwest Coast (more than 13 inches), continuing an unusually wet weather pattern in these areas since January 1. In the South, numerous showers and thunderstorms dumped more than 4 inches of rain from northeastern Texas northeastward into central Kentucky (see Figure 1), while farther west, a series of storms soaked the Pacific Northwest with 4–13 inches of precipitation (see Table 1). The wet start to 1990 has also produced numerous reports of minor to moderate flooding across these regions.

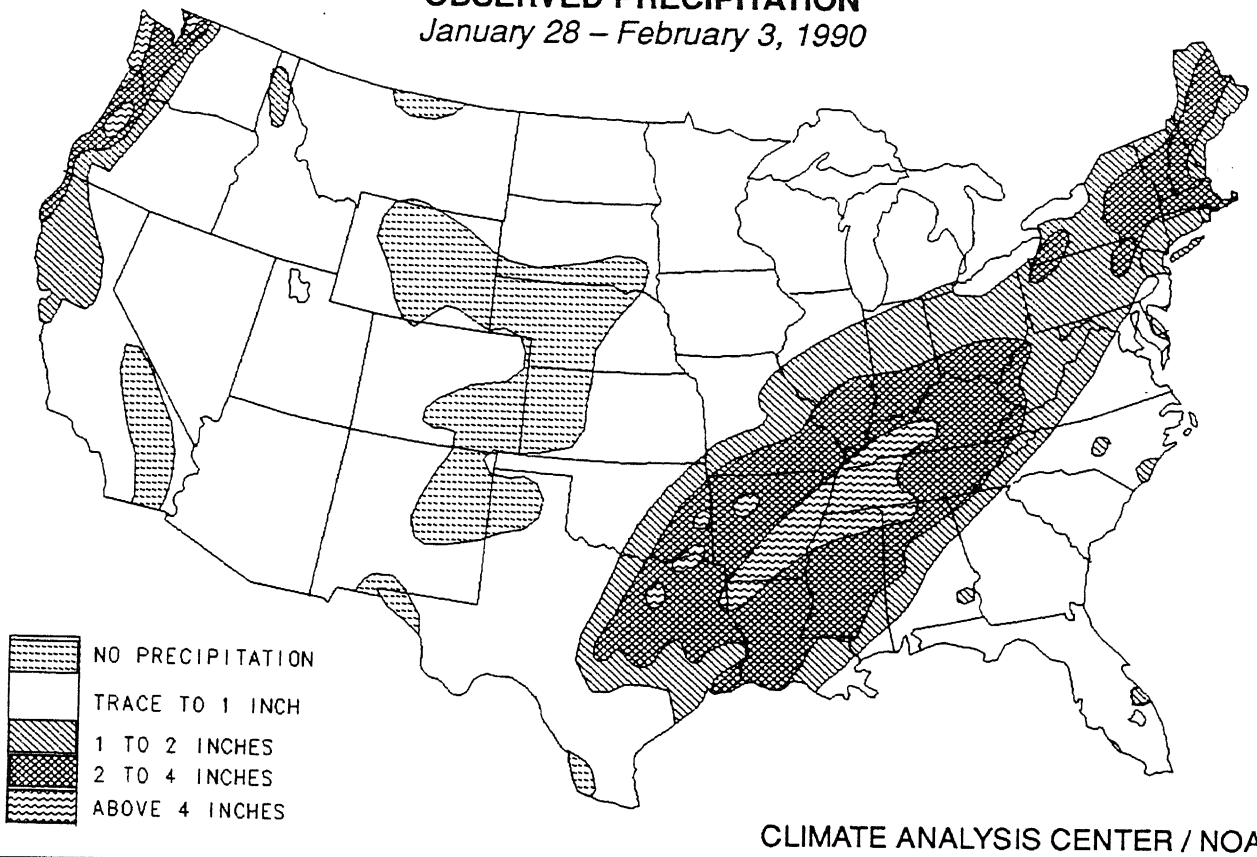
Elsewhere in the lower 48 states, moderate to heavy precipitation fell across the northern Rockies, the south–central Great Plains, the lower Ohio Valley, throughout the Appalachians, and in the mid–Atlantic and New England. Light to moderate totals were observed throughout much of the Far West and across the eastern two–thirds of the nation. Little or no precipitation fell on the desert Southwest, the High Plains, the northern Great Plains, and extreme southern Florida. In the southern half of Florida, long–term dryness and December's hard freeze has left vegetation dehydrated, which in turn has promoted an outbreak of numerous brush and forest fires.

January's thaw persisted into February across the eastern half of the country as temperatures averaged up to 17°F above normal in the central Appalachians (see Table 2). The greatest departures (exceeding +11°F) were found throughout the mid–Atlantic, the central Gulf Coast, central Florida, and in parts of the Tennessee and lower Ohio Valleys. Elsewhere, above normal weekly temperatures occurred in the Pacific Northwest and in the north–central Rockies and Plains. Several daily maximum temperature records were broken during the week as highs pushed into the seventies as far north as Maryland and into the eighties along the southern half of the Atlantic Coast (see Figure 2).

In contrast, bitterly cold Arctic air briefly invaded the northern Rockies, Plains, upper Midwest, and northern New England, sending readings well under 0°F (–32°F at Williston, ND). As a result, temperatures averaged up to 10°F below normal in the upper Missouri Valley. In the Southwest, several winter storms kept conditions slightly colder than usual. Farther north, wintry weather gripped all of Alaska as weekly departures reached –26°F and lows plummeted to –56°F at Northway (see Table 3).

OBSERVED PRECIPITATION

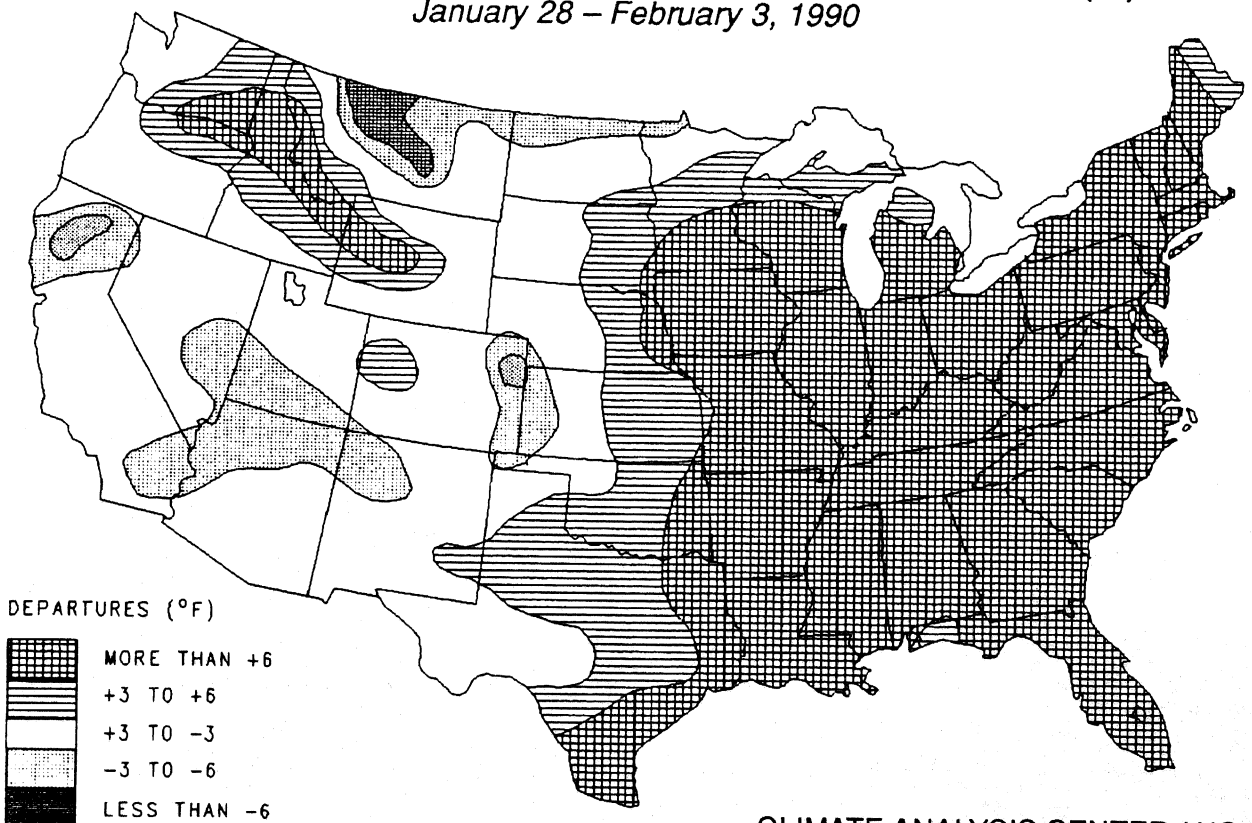
January 28 – February 3, 1990



CLIMATE ANALYSIS CENTER / NOAA

DEPARTURE OF AVERAGE TEMPERATURE FROM NORMAL (°F)

January 28 – February 3, 1990



CLIMATE ANALYSIS CENTER / NOAA

TABLE 1. Selected stations with 3.00 or more inches of precipitation for the week.

STATION	TOTAL (INCHES)	STATION	TOTAL (INCHES)
MEMPHIS NAS, TN	7.58	NASHVILLE, TN	4.01
EL DORADO, AR	7.57	PADUCAH, KY	3.99
JACKSON, TN	7.54	SALEM, OR	3.93
PINE BLUFF, AR	7.44	CHATTANOOGA, TN	3.80
HILO/LYMAN, HAWAII, HI	7.41	JACKSON, KY	3.76
SHREVEPORT/BARKSDALE AFB, LA	7.37	DALLAS-FORT WORTH, TX	3.49
MEMPHIS, TN	6.90	OLYMPIA, WA	3.47
QUILLAYUTE, WA	6.43	FORT WORTH/CARSWELL AFB, TX	3.36
HOPKINSVILLE/CAMPBELL AAF, KY	5.94	COLUMBUS AFB, MS	3.22
MUSCLE SHOALS, AL	5.62	LITTLE ROCK AFB, AR	3.22
EUGENE, OR	5.56	NORTH BEND, OR	3.19
BOWLING GREEN, KY	5.48	DALLAS NAS, TX	3.19
SHREVEPORT, LA	5.03	WEST PLAINS, MO	3.18
ASTORIA, OR	4.24	LAFAYETTE, LA	3.13
HUNTSVILLE, AL	4.14	HARRISON, AR	3.04
BLYTHEVILLE AFB, AR	4.09	JACKSON, MS	3.03

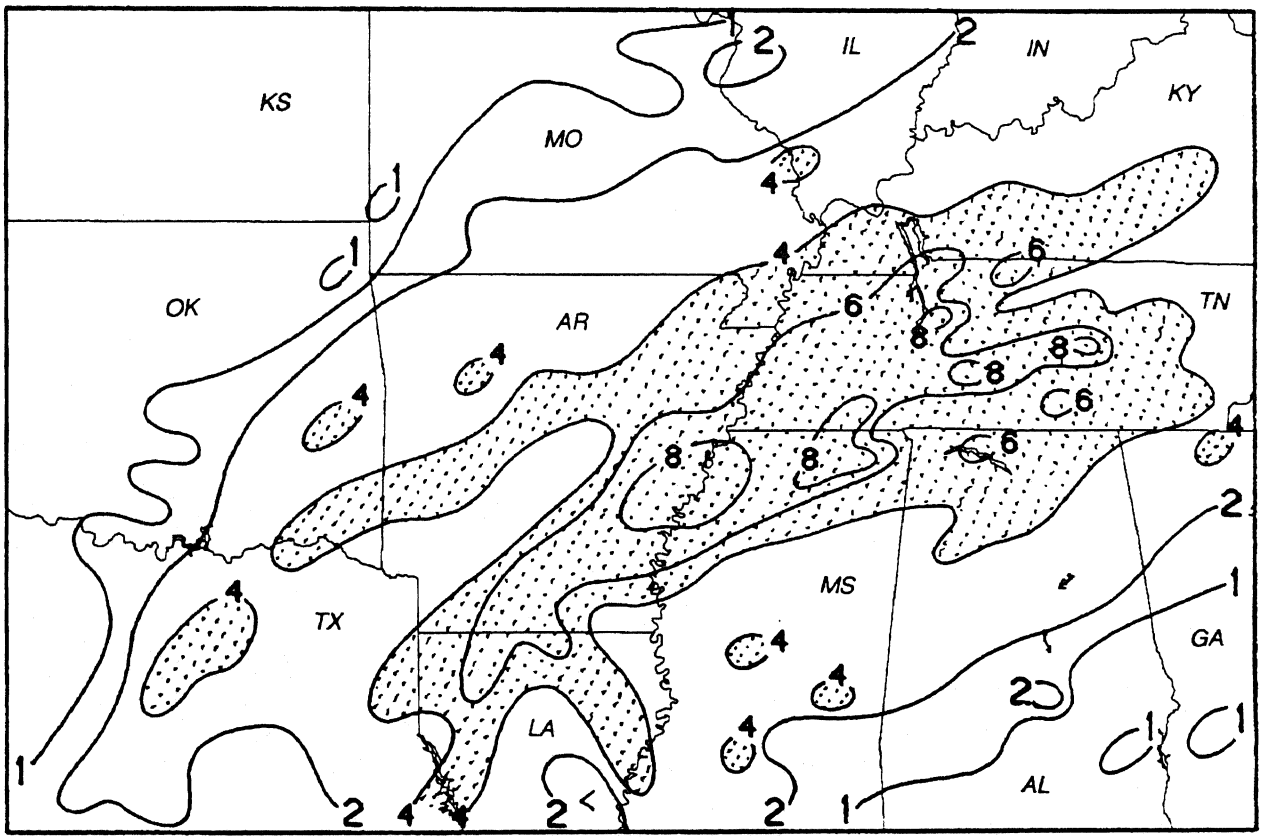


Figure 1. Total precipitation (inches) during the week of January 28-February 3, 1990 based upon first-order synoptic, airways, and the River Forecast Centers stations. Isohyets are only analyzed for 1, 2, 4, 6, and 8 inches, and stippled areas are more than 4 inches. Strong thunderstorms dumped up to 10.6 inches of rain on the already-saturated soils of the lower Mississippi and Tennessee Valleys last week, producing minor to moderate flooding. Since the start of 1990, ample precipitation has drenched much of the South as 15-20 inches of rain has inundated parts of Louisiana, Mississippi, and Arkansas.

TABLE 2. Selected stations with temperatures averaging 12.0°F or more ABOVE normal for the week.

STATION	DEPARTURE (°F)	AVERAGE (°F)	STATION	DEPARTURE (°F)	AVERAGE (°F)
BLUEFIELD, WV	+17.1	48.6	NORFOLK, VA	+12.9	52.6
BECKLEY, WV	+16.1	46.5	WASHINGTON/NATIONAL, DC	+12.8	48.1
WASHINGTON/DULLES, VA	+15.1	45.0	SALISBURY, MD	+12.7	47.6
FLORENCE, SC	+14.7	59.9	BALTIMORE, MD	+12.7	45.3
PHILADELPHIA, PA	+14.2	45.4	MARTINSBURG, WV	+12.7	43.2
CHARLESTON, WV	+14.1	47.3	MORGANTOWN, WV	+12.7	42.2
RALEIGH-DURHAM, NC	+13.7	53.4	ATLANTIC CITY, NJ	+12.6	44.5
HAMPTON/LANGLEY AFB, VA	+13.6	52.6	FORT MYERS, FL	+12.5	75.6
JACKSON, KY	+13.5	46.9	JACKSON, MS	+12.5	58.8
NEW BERN, NC	+13.4	57.6	COLUMBIA, SC	+12.5	57.6
WILMINGTON, DE	+13.4	44.5	GOLDSBORO/SEYMOUR AFB, NC	+12.2	56.1
CAPE HATTERAS, NC	+13.3	57.9	MUSCLE SHOALS, AL	+12.2	52.6
MILLVILLE, NJ	+13.3	44.9	WEST PALM BEACH, FL	+12.1	77.2
WILMINGTON, NC	+13.2	58.9	SUMTER/SHAW AFB, SC	+12.1	59.4
RICHMOND, VA	+13.0	49.8	MEMPHIS, TN	+12.0	52.4
TAMPA, FL	+12.9	72.6	DOVER AFB, DE	+12.0	47.1
CHARLESTON, SC	+12.9	60.9			

TABLE 3. Selected stations with temperatures averaging 7.0°F or more BELOW normal for the week.

STATION	DEPARTURE (°F)	AVERAGE (°F)	STATION	DEPARTURE (°F)	AVERAGE (°F)
FORT YUKON, AK	-26.9	-45.7	VALDEZ, AK	-14.3	5.3
NORTHWAY, AK	-25.9	-43.3	BARTER ISLAND, AK	-12.9	-30.4
GULKANA, AK	-22.5	-26.4	YAKUTAT, AK	-12.0	13.3
FAIRBANKS, AK	-22.3	-31.5	JUNEAU, AK	-11.1	12.9
BIG DELTA, AK	-20.8	-23.6	KETCHIKAN, AK	-10.1	24.4
TALKEETNA, AK	-17.8	-6.4	CUT BANK, MT	-9.7	7.6
BETTLES, AK	-17.0	-25.8	KOTZEBUE, AK	-9.7	-13.2
NOME, AK	-16.4	-11.4	HOMER, AK	-8.8	13.8
ANCHORAGE, AK	-15.5	-1.0	ILIAMNA, AK	-8.4	7.7
BETHEL, AK	-15.2	-9.7	UNALAKLEET, AK	-7.8	-4.9
CORDOVA/MILE 13, AK	-14.7	9.1	REDDING, CA	-7.4	41.2
KENAI, AK	-14.6	-1.9	ANNETTE ISLAND, AK	-7.2	26.9

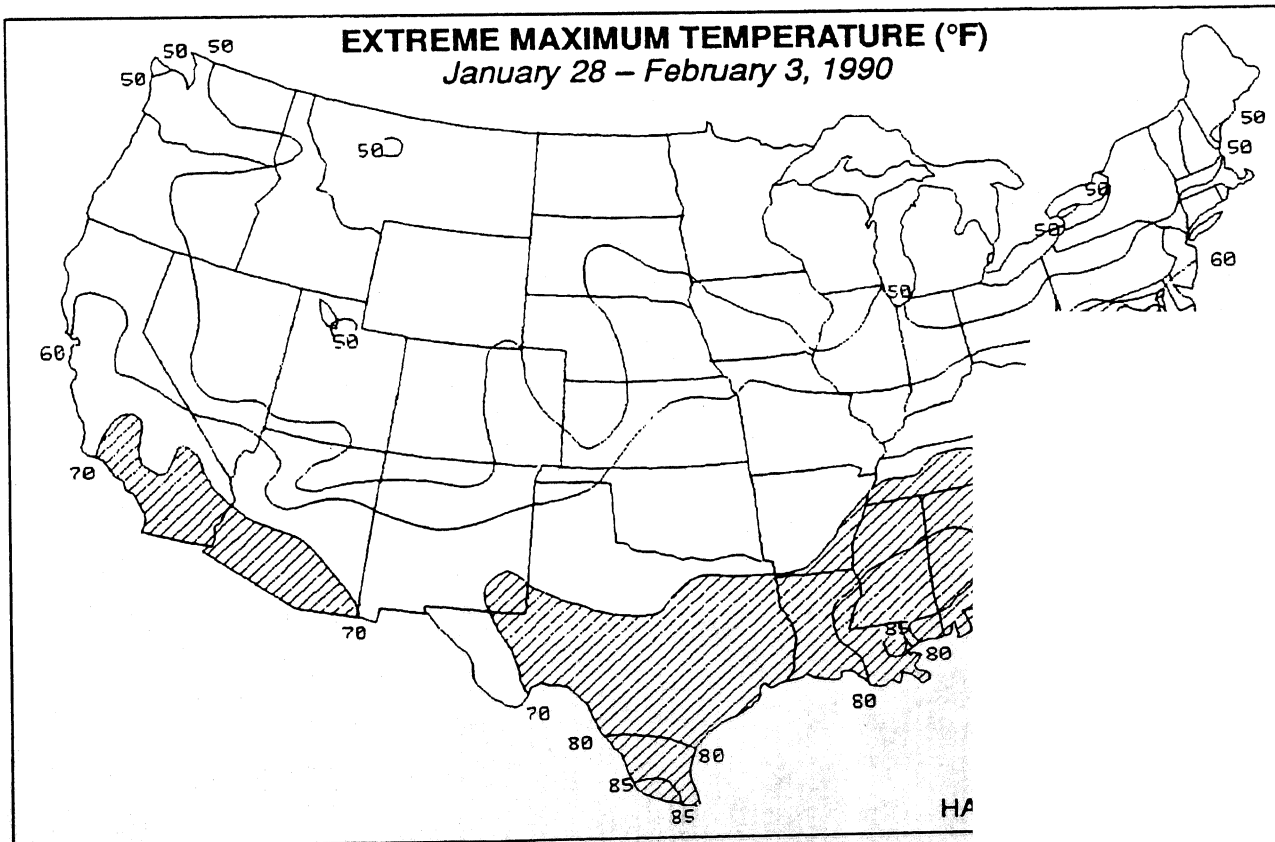
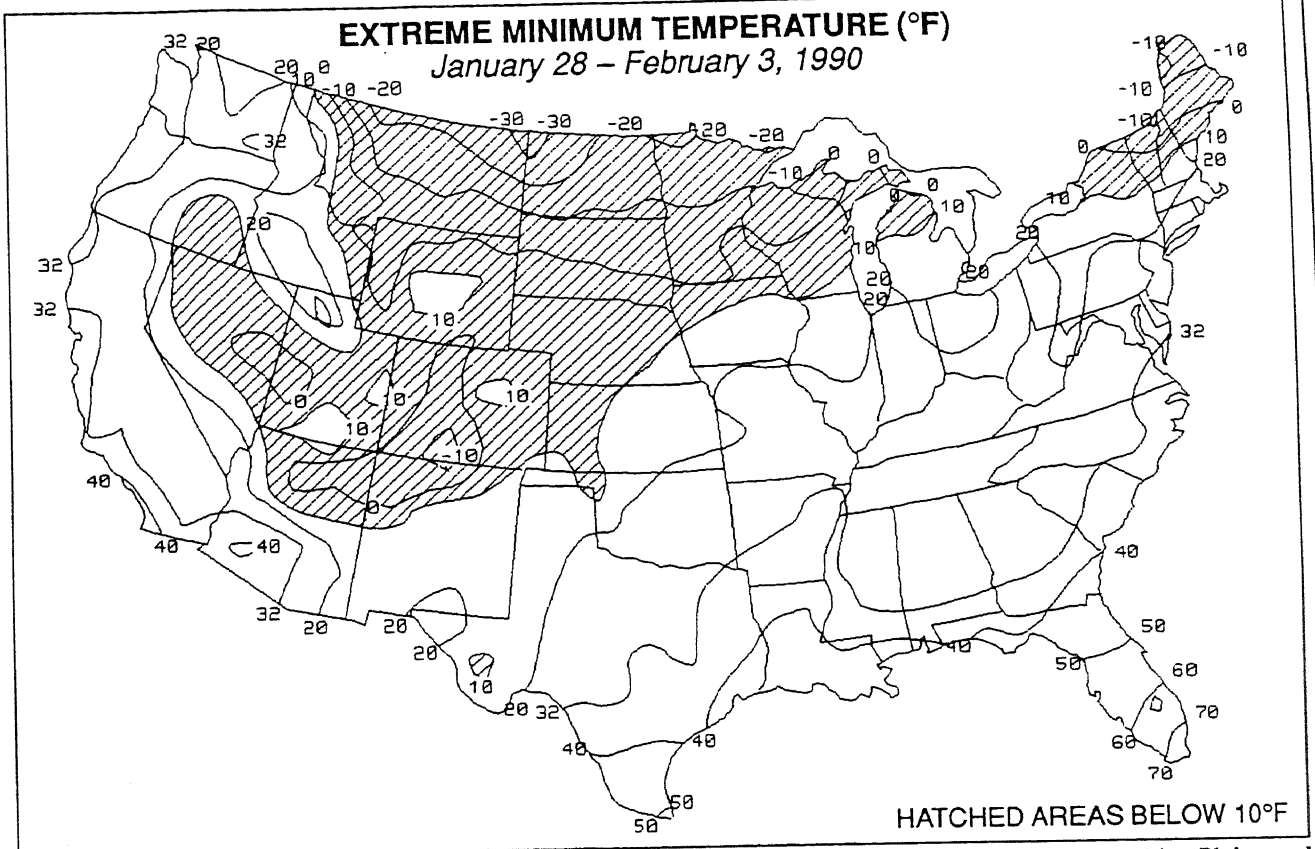
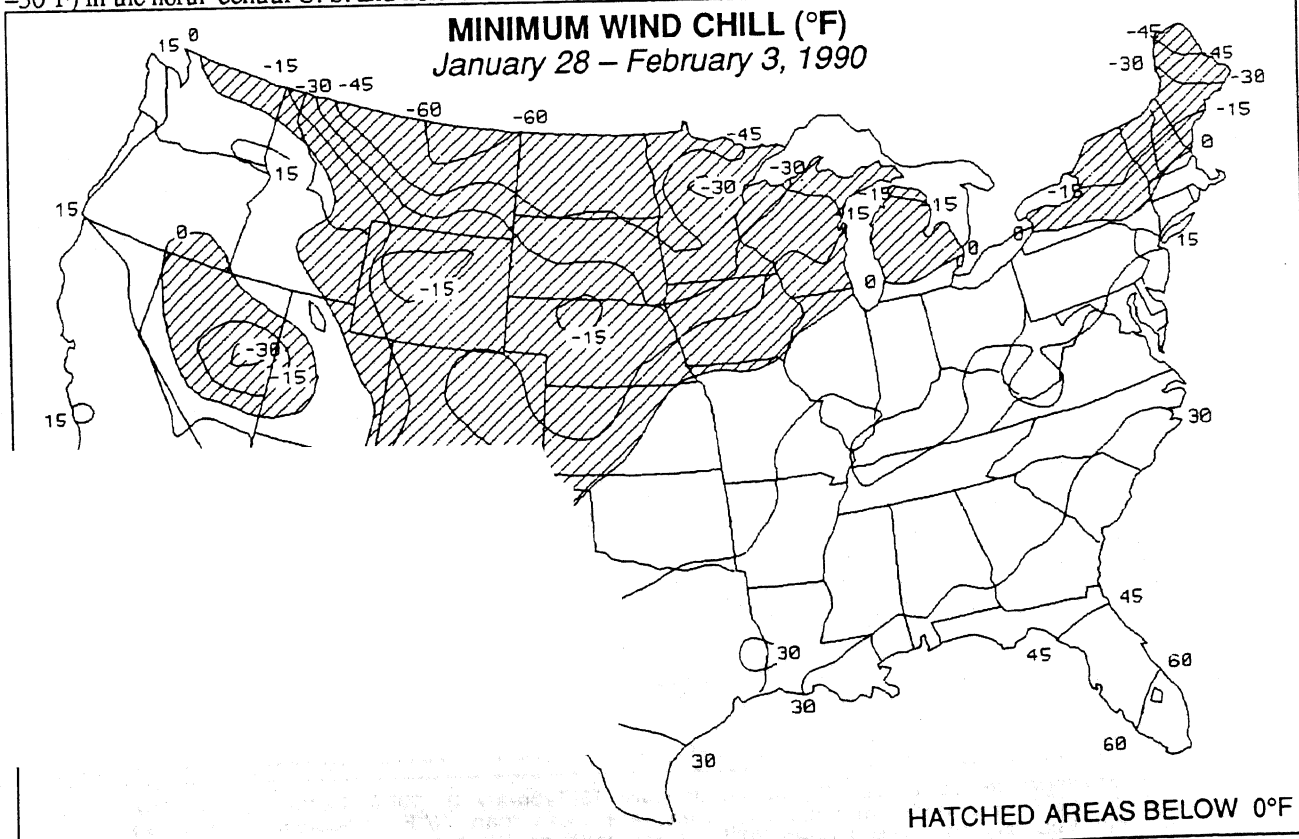
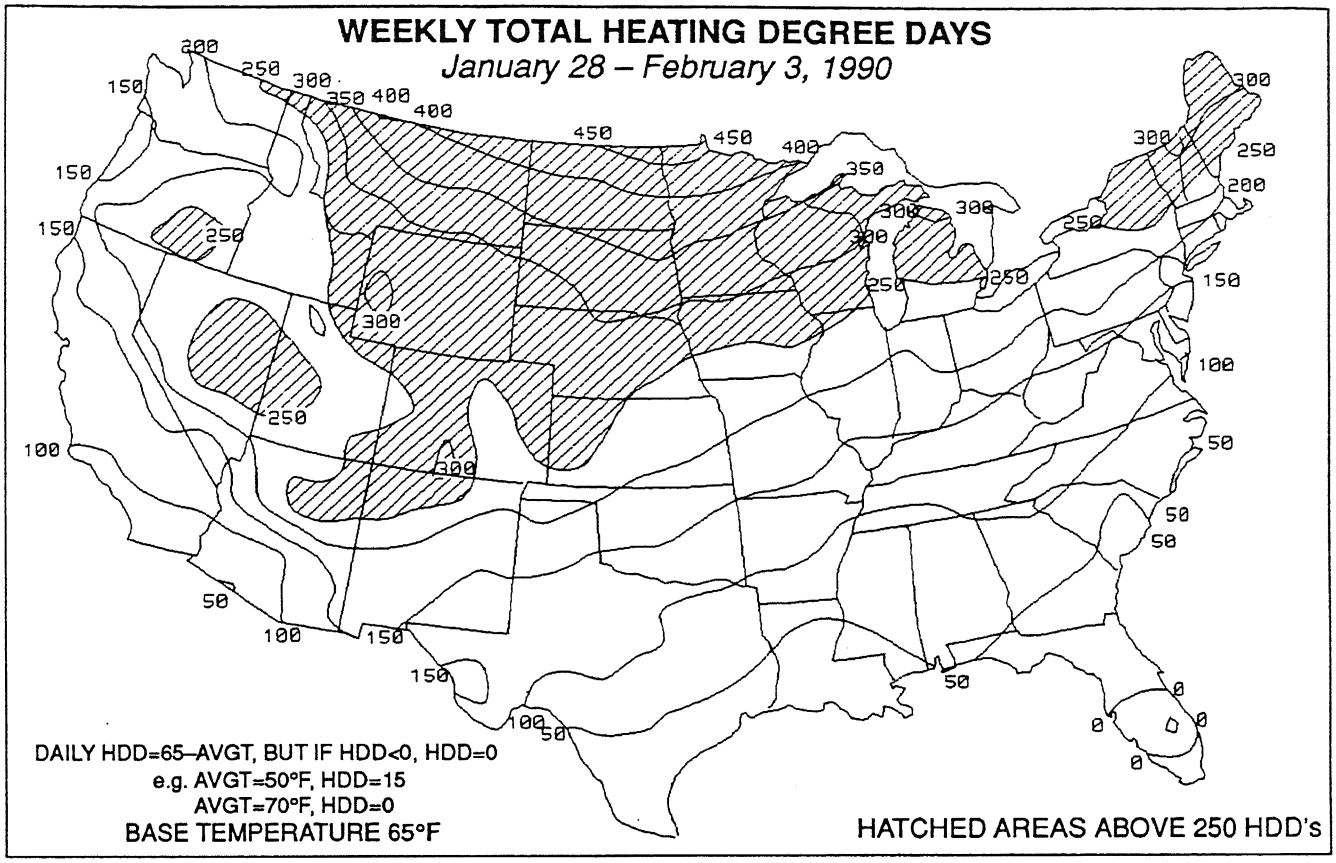


Figure 2. Extreme maximum temperatures (°F) during January 28-February 3, 1
for 50°F, 60°F, 70°F, 80°F, and 85°F, and stippled areas are more than 70°
weather continued into February as highs topped 70°F as far north as Washing
along the southern Atlantic and eastern Gulf Coasts and in parts of the Deep

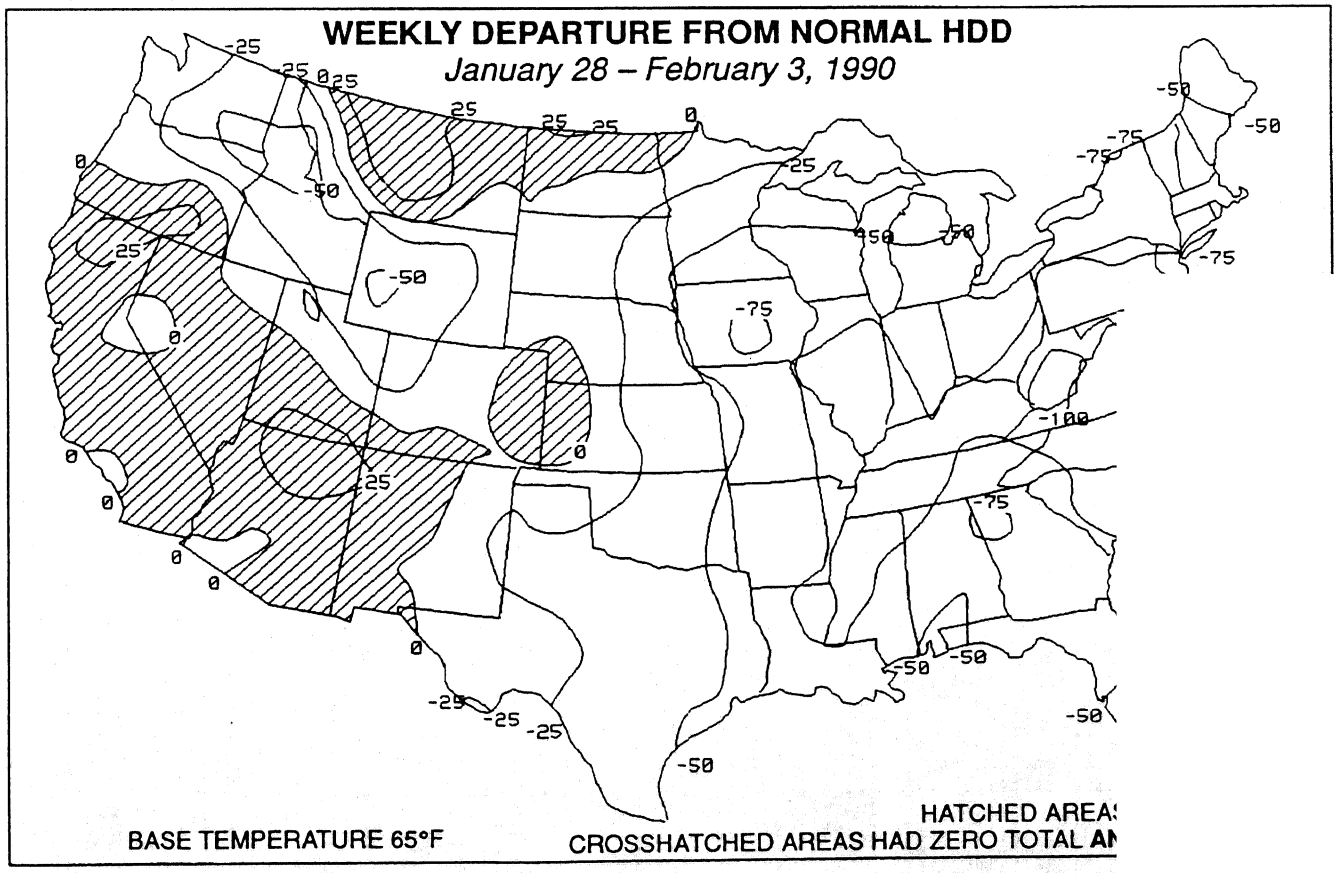


During the middle of the week, a blast of Arctic air plunged temperatures well below 0°F in the northern Rockies, Plains, and upper Midwest (–32°F at Williston, ND). In contrast, readings failed to drop below freezing along the Gulf and southern Atlantic Coasts (top). The combination of gusty winds and subzero temperatures created extremely dangerous wind chills (less than –30°F) in the north–central U. S. and northern Maine (bottom).

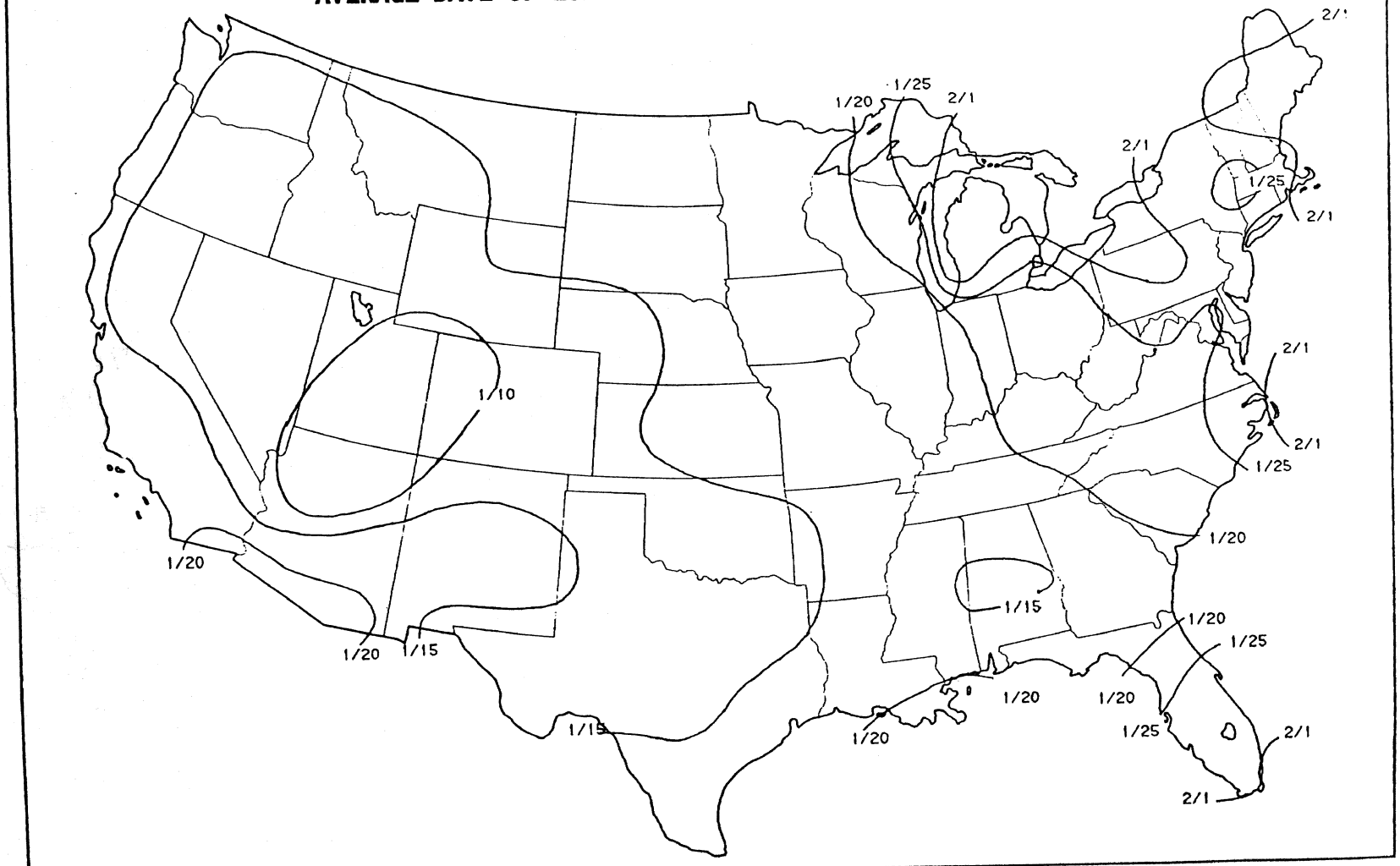




A brief intrusion of bitterly cold Arctic air in the northern Rockies, Plains, upper Midwest, and northern New England pushed the regions' weekly heating usage above 350 HDD's while unseasonably mild weather kept the total heating usage in the remainder of the eastern half of the country generally under 250 HDD's (top). Subnormal temperatures in the northern Plains and the southwestern quarter of the nation slightly increased the weekly heating demand. In sharp contrast, spring–like conditions in the mid–Atlantic and Southeast greatly reduced the usual heating requirements (bottom).



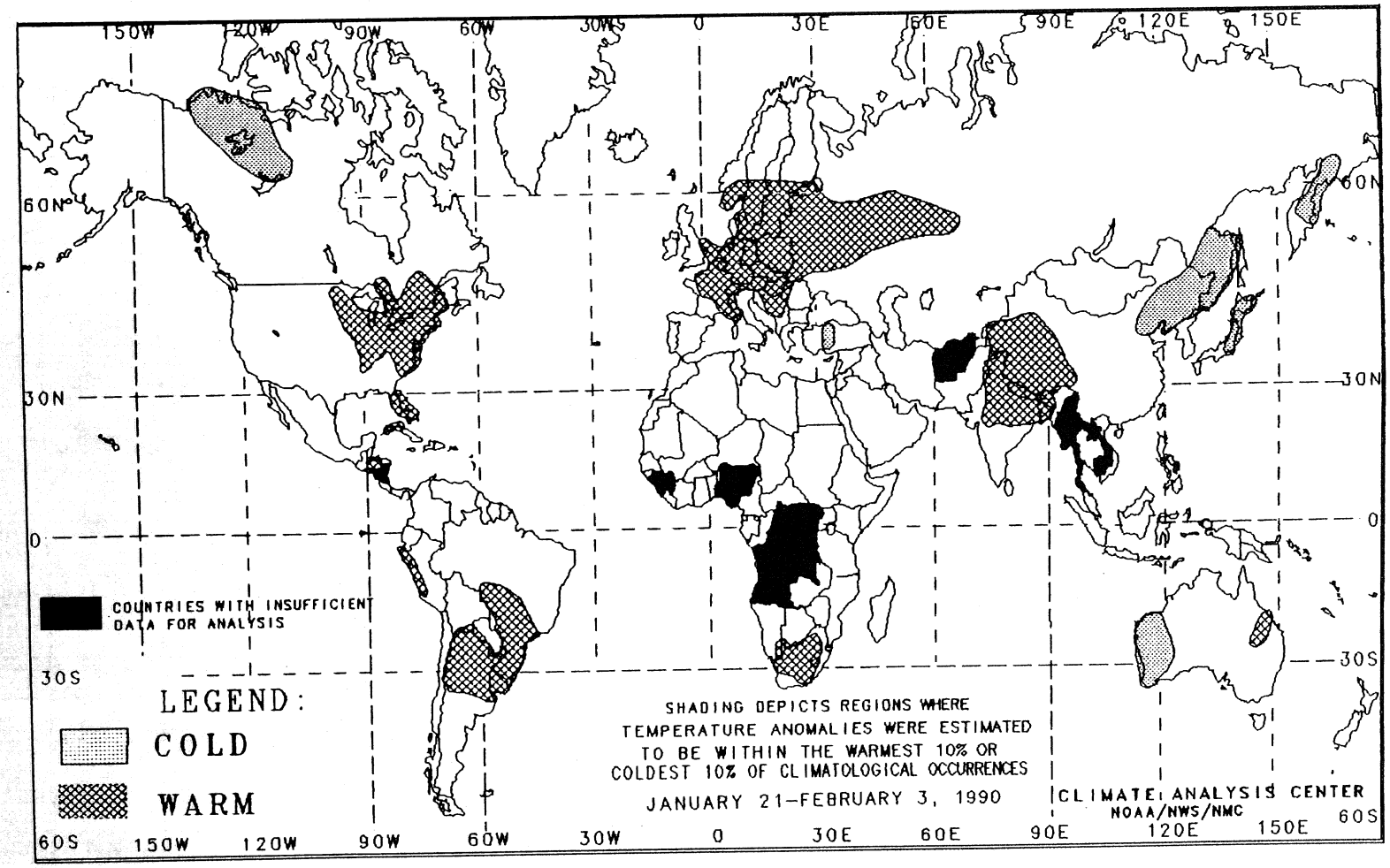
AVERAGE DATE OF LOWEST NORMAL DAILY MINIMUM TEMPERATURE



Based upon the 1951-1980 daily minimum temperature normals obtained from the National Climatic Data Center (NCDC), contours of the approximate dates of the lowest normal temperatures were produced. In the West, the coldest weather usually occurs during early to mid January. In the South, the lowest minimum temperatures are normally observed during mid to late January, while late January to early February usually is the time of the year that the East and the Great Lakes experiences their coldest conditions. So far, however, the lowest readings of this Winter have been recorded during mid to late December in the eastern two-thirds of the country while January and early February 1990 have proven to be unseasonably mild.

GLOBAL TEMPERATURE ANOMALIES

2 WEEKS

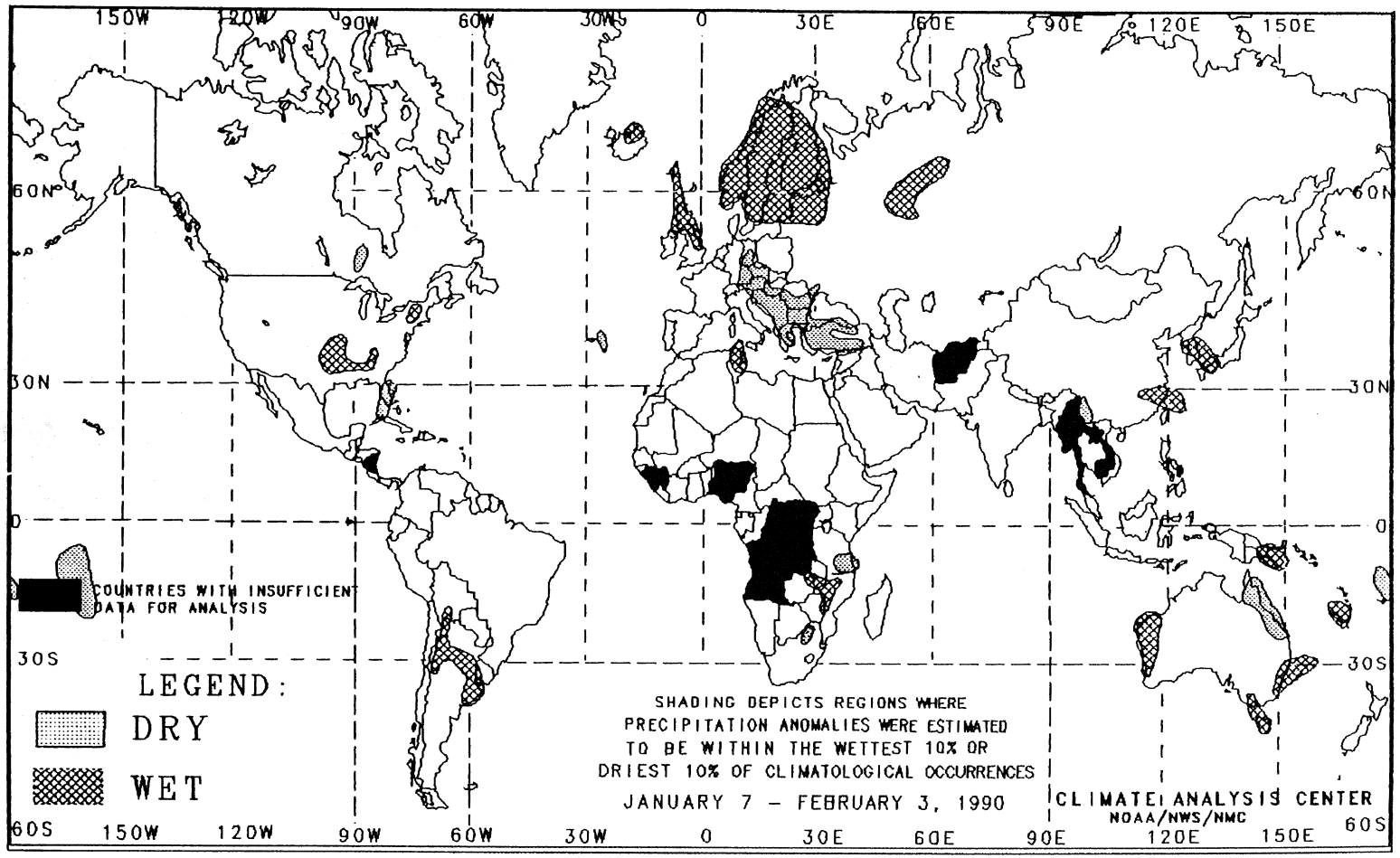


The anomalies on this chart are based on approximately 2500 observing stations ... received from synoptic ...asis so many night time ...ervations the estimated ...nay have resulted in an ...agnitude of temperature

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data are insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

This chart shows general areas of two week temperature anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

4 WEEKS



The anomalies on this chart are based on approximately 2500 observing stations for which at least 27 days of precipitation observations (including zero amounts) were received or estimated from synoptic reports. As a result of both missing observations and the use of estimates from synoptic reports (which are conservative), a dry bias in the total precipitation amount may exist for some stations used in this analysis. This in turn may have resulted in an overestimation of the extent of some dry anomalies.

In climatologically arid regions where normal precipitation for the four week period is less than 20 mm, dry anomalies are not depicted. Additionally, wet anomalies for such arid regions are not depicted unless the total four week precipitation exceeds 50 mm.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data are insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

The chart shows general areas of four week precipitation anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

UNITED STATES MONTHLY CLIMATE HIGHLIGHTS

JANUARY 1990

After the eastern two–thirds of the U.S. was plunged into a December deep freeze, the first month of 1990 ushered in completely different weather conditions. Strong zonal (west to east) flow rapidly pushed storm systems across the country while preventing the southward advance of bitterly cold Arctic air. This pattern allowed exceptionally mild air to cover the vast majority of the nation while dumping copious amounts of precipitation on the Pacific Northwest and Deep South.

At the time, the precipitation in the Pacific Northwest provided welcome relief from an exceptionally dry December. As the month progressed, however, numerous storms continued to march through the Pacific Northwest, causing widespread flooding across western Washington and Oregon. Parts of the region were inundated by nearly four feet of January rain.

Farther south across California, several of these systems re–developed over the desert Southwest, dropping light precipitation across the southern half of the state while generating larger amounts further north. Much of the serious moisture deficiencies that plagued northern California late last year were significantly alleviated by January's rainfall, but conditions across the southern sections remained extremely dry.

In contrast, a lack of moisture was not a problem across most of the southern and eastern U.S. Cold fronts tapped Gulf moisture, producing numerous outbreaks of heavy thunderstorms from the south–central Plains eastward across the lower Mississippi Valley and central Gulf Coast. Low pressure centers occasionally developed along the fronts as they stalled in the South. These systems tracked northeasterly, enhancing precipitation totals across the South and pushing moisture northward across most of the East. Several of the thunderstorm outbreaks were quite severe as large hail, damaging winds, and a few tornadoes were spawned in eastern Oklahoma and Texas and across the lower Mississippi and Tennessee Valleys.

Despite a lack of Arctic air, some of the storm systems pulled in enough cold air to produce snow along the northern and western fringes of the precipitation shields. Moderate snowfall briefly interrupted the spring–like conditions in the nation's midsection early and late in the month (up to 10" in Oklahoma and Kansas shortly after New Years Day; more than 9" across northern Illinois and the Great Lakes toward the end of January), while parts of New England were buried under a foot of snow several times during the month. In addition, up to three feet of snow blanketed the Colorado and New Mexico mountains around mid–January while significant frozen precipitation occurred as far south as the mid–Atlantic.

Two short–lived blasts of Arctic air affected the nation around mid–month and towards February. The first blast was accompanied by 70 mph wind gusts and temperatures plummeted as much as 25°F in a few hours across the northern Plains, Great Lakes, and Northeast. At the end of January, another quick shot of polar cold invaded the northern Rockies and Plains, dropping temperatures down to –32°F at Williston, ND.

According to the River Forecast Centers, January's greatest precipitation totals in the contiguous 48 states were found in northwestern Oregon, which was deluged by 47.2 inches of rain. Most of western Washington and Oregon measured between 8 to 20 inches, while 2 to 7 inches fell across northern California. In addition, between 6 and 12 inches of rain drenched the south–central Great Plains eastward to the southern Appalachians (see Table 1, Figures 1 and 2). Rainfall was quite heavy across central Louisiana as more than 18 inches inundated the state north of Lafayette. Parts of the Northeast also reported heavy precipitation (between 4 and 6 inches). Even though monthly precipitation was also above normal in the south–central Rockies and High Plains, amounts were generally under 1.5 inches as January is typically one of the driest months of the year. Regionally, the South experienced the tenth wettest January on record, according to the National Climatic Data Center, while the Southeast and Northwest regions observed slightly above normal January precipitation. Several states in these regions, namely Alabama, Louisiana, Mississippi, and Oklahoma, observed the third, third, sixth, and tenth wettest January, respectively. Elsewhere, most of Hawaii reported ample rainfall (up to 232% of normal at Hilo) while heavy precipitation fell along the south–central Alaskan coast.

Although January precipitation was above normal across the primary hard red Winter Wheat belt, which roughly extends from the Texas Panhandle northward into southern Nebraska, the preceding three months were exceedingly dry, causing concern over insufficient soil moisture (see Table 7). The southern two–thirds of Florida also remained an area of concern as subnormal rains fell across much of the state, particularly around central Florida (some RFC stations measured no January rainfall). In addition, little precipitation was recorded across the northern Plains, upper Midwest, and northern Rockies with most stations receiving under half the normal monthly precipitation (see Table 2, Figures 1 and 2). Across California and the Great Basin, near normal January precipitation did not compensate for previous dryness, and long–term moisture deficits remained high. On a state–wide basis, Wyoming, South Dakota, and North Dakota reported the third, sixth, and eighth driest January while Florida experienced its eighteenth driest. Regionally, the West–North Central observed the eighth driest January. Nationally, more than 28% of the country was affected by severe or extreme drought (see Figure 5), a slightly lower number than the previous few months but only exceeded by 10 other Januaries during the past 96 years.

January 1990 will go down in the record books as the warmest January nationally, according to the National Climatic Data Center. The West–North Central, East–North Central, Central, Northwest, Northeast, and South regions observed the first, second, fourth, fifth, sixth, and ninth warmest January, respectively. All but the southwestern quarter of the nation reported monthly temperatures more than 4°F above normal (see front cover), and departures exceeded +16°F in portions of the nor
Figure 3). Interes
January average t
stations set extrem
(see Table 7). Tl
systems which pr
conditions.

Only the extre
below normal Jan
–12°F (see Table 4
experienced a coo
temperatures aver

TEMPERATURE AND PRECIPITATION RANKINGS FOR JANUARY 1990, BASED ON THE PERIOD 1895 – 1990 (96 YEARS) WHERE 1=DRIEST/COLDEST AND 96=WETTEST/HOTTEST

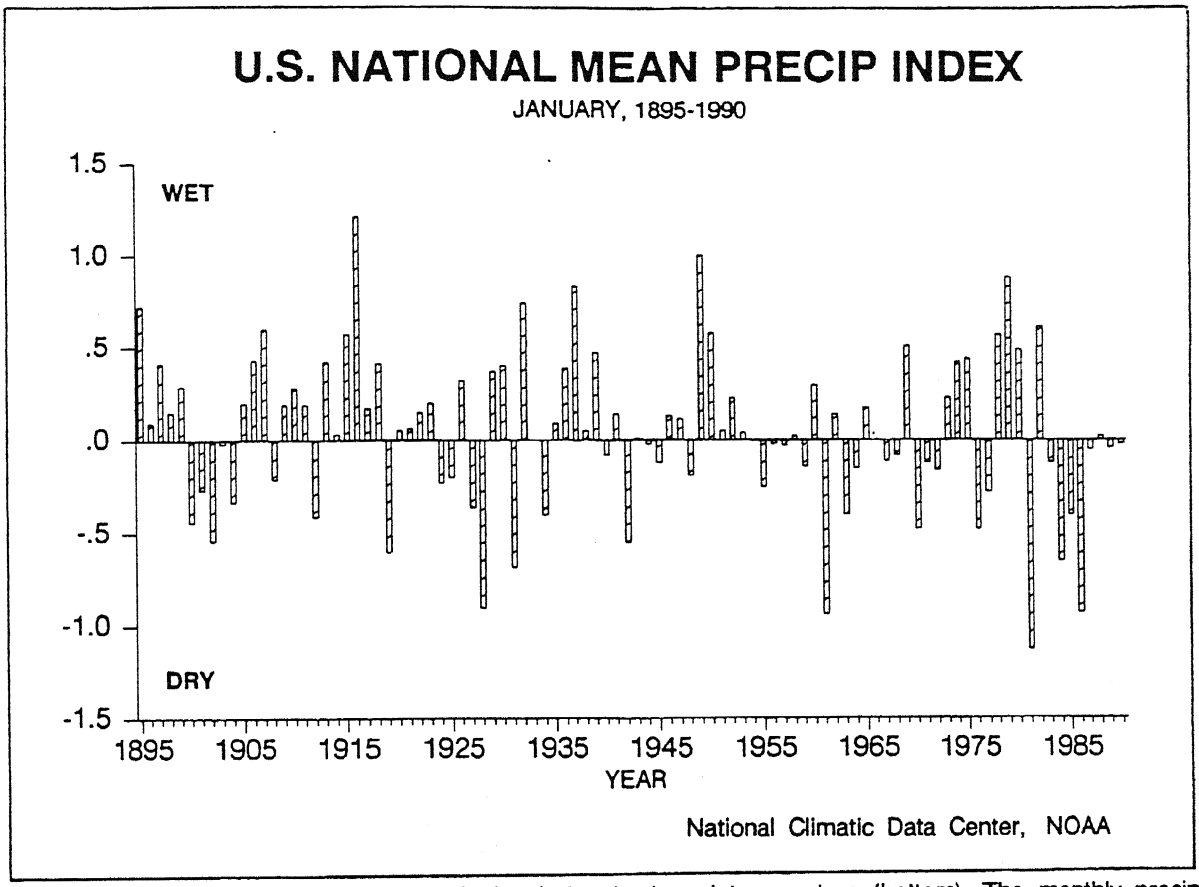
REGION	*PRECIPITATION*	*TEMPERATURE*
NORTHEAST	63	91
EAST NORTH CENTRAL	38	95
CENTRAL	48	93
SOUTHEAST	66	85
WEST NORTH CENTRAL	8	96
SOUTH	87	88
SOUTHWEST	36	71
NORTHWEST	66	92
WEST	42	58
NATIONAL	38	96

National Climatic Data Center

PRECIPITATION RANKINGS FOR JANUARY 1990, BASED ON THE PERIOD 1895 – 1990 (96 YEARS) WHERE 1=DRIEST AND 96=WETTEST

STATE	*RANK*	*STATE*	*RANK*	*STATE*	*RANK*	*STATE*	*RANK*
AL	94	IA	44	NE	45	RI	39
AZ	44	KS	79	NV	32	SC	41
AR	63	KY	54	NH	33	SD	6
CA	49	LA	94	NJ	77	TN	38
CO	51	ME	72	NM	35	TX	64
CT	73	MD	61	NY	61	UT	39
DE	43	MA	39	NC	46	VT	48
FL	18	MI	49	ND	8	VA	41
GA	59	MN	24	OH	45	WA	72
ID	41	MS	91	OK	87	WV	38
IL	50	MO	69	OR	64	WI	53
IN	53	MT	28	PA	68	WY	3

National Climatic Data Center



U.S. National January 1990 mean precipitation index (top) and temperature (bottom). The monthly precipitation for each climate division in the country (total of 344) was first standardized over the 1951-1980 period, then weighed by area and averaged to determine a national standardized precipitation value. Negative (positive) values are dry (wet). Based upon the index, the January 1990 precipitation was near the long-term mean (the 38th driest year during the past 96 years). January 1990 temperatures across the contiguous U.S. averaged well above the long-term mean, ranking as the mildest January on record (since 1895). Most of the northern half of the country recorded departures exceeding +8°F, and parts of the Dakotas were more than 17°F above normal.

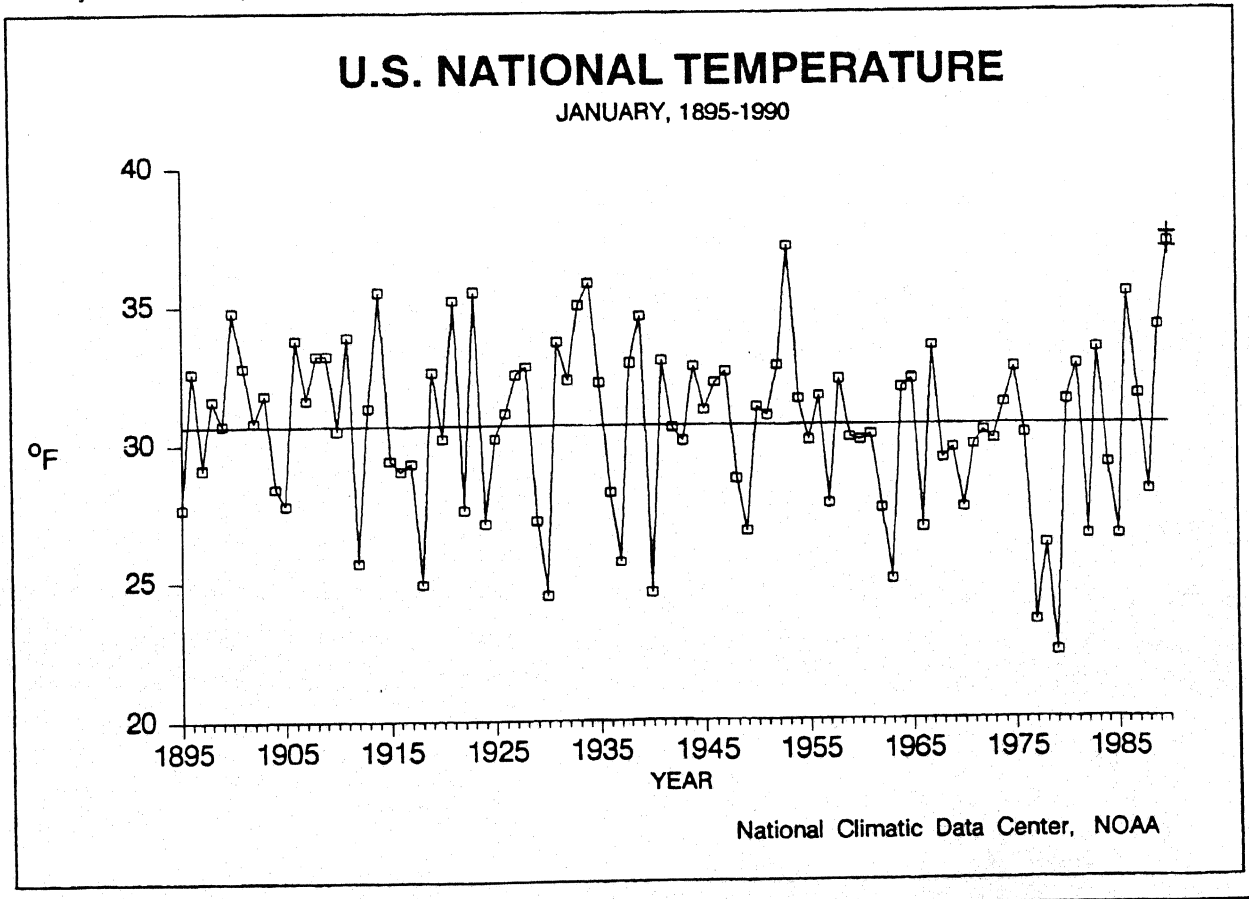


TABLE 1. SELECTED STATIONS WITH MORE THAN 150% OF NORMAL PRECIPITATION AND MORE THAN 6 INCHES OF PRECIPITATION; OR, STATIONS WITH MORE THAN 8 INCHES OF PRECIPITATION AND NO NORMALS DURING JANUARY 1990.

STATION	TOTAL (INCHES)	PCT. OF NORMAL	STATION	TOTAL (INCHES)	PCT. OF NORMAL
HILO/LYMAN, HAWAII, HI	29.13	309.6	MONTGOMERY, AL	10.16	243.1
EUGENE, OR	15.09	180.3	MERIDIAN NAS, MS	10.07	***
OLYMPIA, WA	14.53	170.7	SHREVEPORT, LA	10.02	249.9
ALEXANDRIA/ENGLAND AFB, LA	12.98	291.0	SEATTLE-TACOMA, WA	9.56	158.8
MCCOMB, MS	12.74	***	MONROE, LA	8.97	185.3
BILOXI/KEESLER AFB, MS	12.39	308.2	LAKE CHARLES, LA	8.91	194.5
JACKSON, MS	12.17	244.4	PORT ARTHUR, TX	8.50	209.4
SHREVEPORT/BARKSDALE AFB, LA	11.56	***	ATLANTA, GA	8.47	173.2
BATON ROUGE, LA	11.41	249.1	TUSCALOOSA, AL	8.35	156.4
TACOMA/MCCHORD AFB, WA	11.35	***	COLUMBUS AFB, MS	8.35	***
TACOMA/FT LEWIS/GRAY AAF, WA	11.33	***	LAFAYETTE, LA	7.64	161.9
NEW ORLEANS/MOISANT, LA	11.23	226.9	MOBILE, AL	7.35	160.8
MERIDIAN, MS	11.23	225.5	EL DORADO, AR	7.20	151.9
CENTERVILLE, GA	11.07	***	LUFKIN, TX	6.74	189.9
NEW ORLEANS/LAKE FRONT, LA	10.91	***	FAYETTEVILLE, AR	6.17	314.8
OZARK/MAXWELL AFB, AL	10.20	269.8	ALBANY, GA	6.16	158.8

(Note: Stations without precipitation normals are indicated by asterisks.)

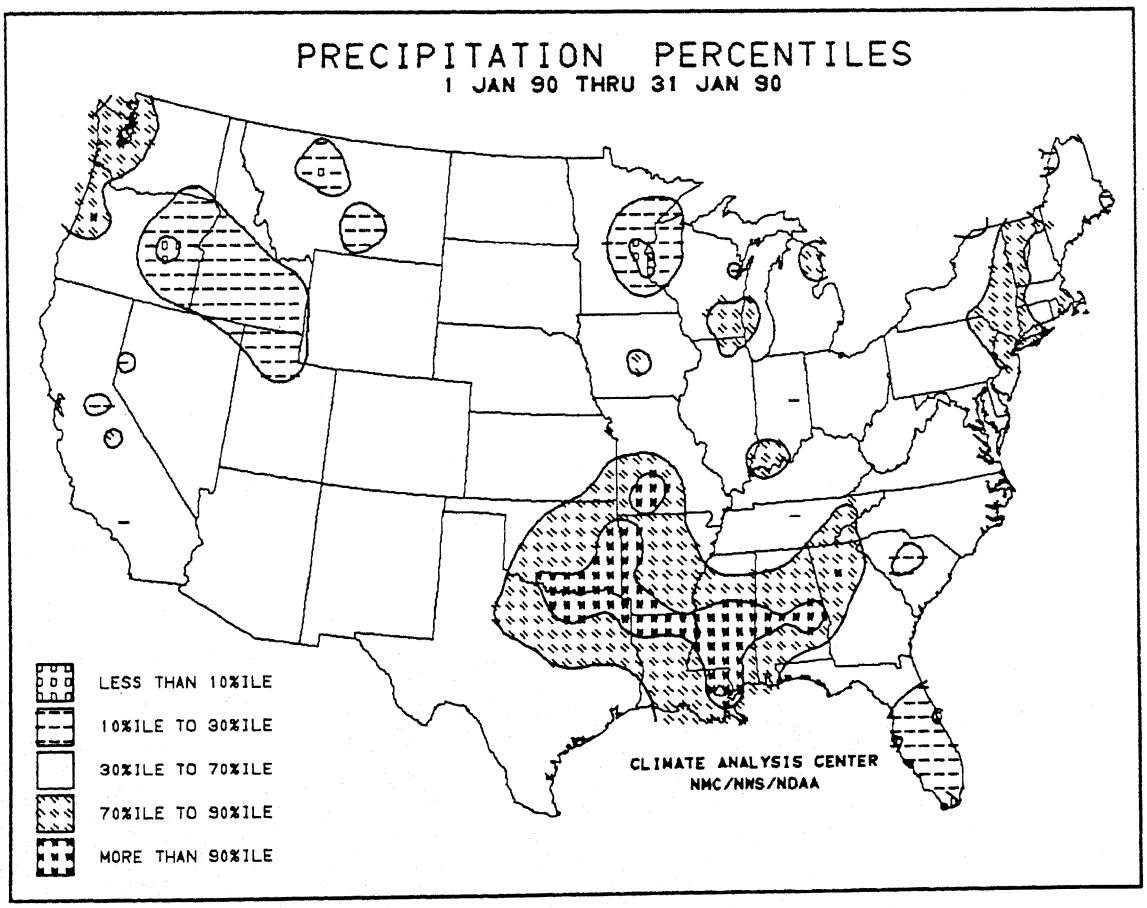


Figure 1. Precipitation percentiles for January 1990. Overall, much of the nation experienced near-normal January precipitation. The areas with statistically significant heavy precipitation included the south-central Great Plains, the lower Mississippi Valley, the central Gulf Coast, and parts of the Pacific Northwest and New England. Substantial January 1990 dryness occurred in the northern Intermountain West and Rockies, throughout most of Florida, and in portions of the upper Midwest. The northern Plains recorded very little monthly precipitation, but the area is normally arid during this time of the year.

TABLE 2. SELECTED STATIONS WITH LESS THAN 70% OF NORMAL PRECIPITATION AND NORMAL PRECIPITATION 3.00 INCHES OR MORE DURING JANUARY 1990.

STATION	TOTAL (INCHES)	PCT. OF NORMAL	NORMAL (INCHES)	STATION	TOTAL (INCHES)	PCT. OF NORMAL	NORMAL (INCHES)
BRUNSWICK, GA	0.39	12.7	3.08	APALACHICOLA, FL	2.43	69.2	3.51
LOS ANGELES, CA	1.17	38.5	3.04	JACKSON, KY	2.54	64.7	3.93
LONG BEACH, CA	1.26	37.4	3.37	NEW BERN, NC	2.69	67.0	4.01
SANTA BARBARA, CA	1.67	43.6	3.83	AUGUSTA, GA	2.70	68.0	3.98
HANCOCK, MI	1.74	47.0	3.70	NASHVILLE, TN	2.77	61.9	4.47
WAYCROSS, GA	1.93	58.3	3.31	JONESBORO, AR	2.91	58.4	4.98
FLORENCE, SC	2.00	56.6	3.53	BLYTHEVILLE, AR	2.98	53.0	5.62
GOLDSBORO/SEYMOUR, NC	2.04	61.8	3.29	SAN FRANSISCO, CA	3.07	66.2	4.64
WILMINGTON, NC	2.34	64.2	3.64	TALLAHASSEE, FL	3.11	67.0	4.64
COLUMBIA, SC	2.43	55.4	4.38	KETCHIKAN, AK	4.76	34.7	13.73

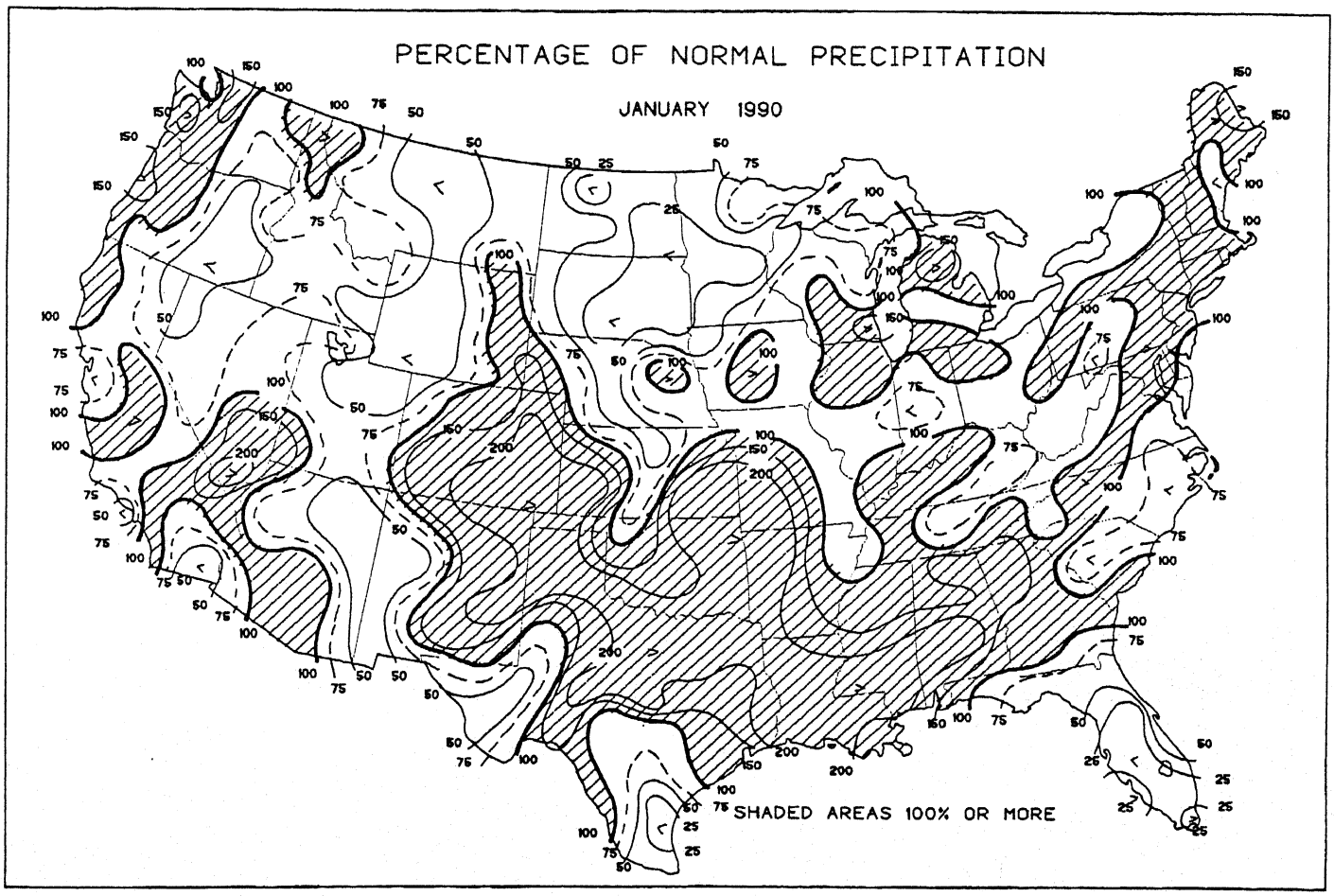


Figure 2. Percent of normal precipitation during January 1990. While most of the Pacific Northwest, south-central Rockies and Plains, the Southeast, western Great Lakes, and the Northeast reported surplus monthly precipitation, extremely dry weather affected the northern Intermountain West, Great Basin, northern Rockies and Plains, the upper Midwest, Florida, southern Texas, and the south-central Atlantic Coast. Overall, January 1990 precipitation in the the contiguous U.S. was near the long-term mean (38th driest). Elsewhere, January 1990 brought generous rainfall to Hawaii and slightly above normal precipitation to south-central Alaska. The remainder of the state observed close to normal monthly precipitation.

ABLE 3. JANUARY 1990 AVERAGE TEMPERATURES 14.0°F OR MORE ABOVE NORMAL.

TATION	DEPARTURE (°F)	AVERAGE (°F)	STATION	DEPARTURE (°F)	AVERAGE (°F)
MESTOWN, ND	+18.0	23.4	MINNEAPOLIS, MN	+15.1	26.2
BERDEEN, SD	+17.3	25.3	WATERLOO, IA	+14.8	29.1
RGO, ND	+17.3	21.7	GLASGOW, MT	+14.8	23.2
URON, SD	+16.9	28.2	ST. CLOUD, MN	+14.6	21.9
SMARCK, ND	+16.7	23.5	HAVRE, MT	+14.4	26.4
RAND FORKS, ND	+16.3	18.4	OMAHA/EPPLEY, NE	+14.2	34.3
OCHESTER, MN	+16.2	25.9	MASON CITY, IA	+14.1	26.6
EVIL'S LAKE, ND	+16.2	19.6	EAU CLAIRE, WI	+14.1	23.9
NOT, ND	+16.1	22.4	ST. LOUIS, MO	+14.0	43.0
EXANDRIA, MN	+16.1	21.7	QUINCY, IL	+14.0	37.5
ATERTOWN, SD	+15.9	23.9	LINCOLN, NE	+14.0	33.8
ERRE, SD	+15.8	30.8	SIOUX CITY, IA	+14.0	30.4
OUX FALLS, SD	+15.7	28.2	SPENCER, IA	+14.0	26.7
LLISTON, ND	+15.7	22.8			

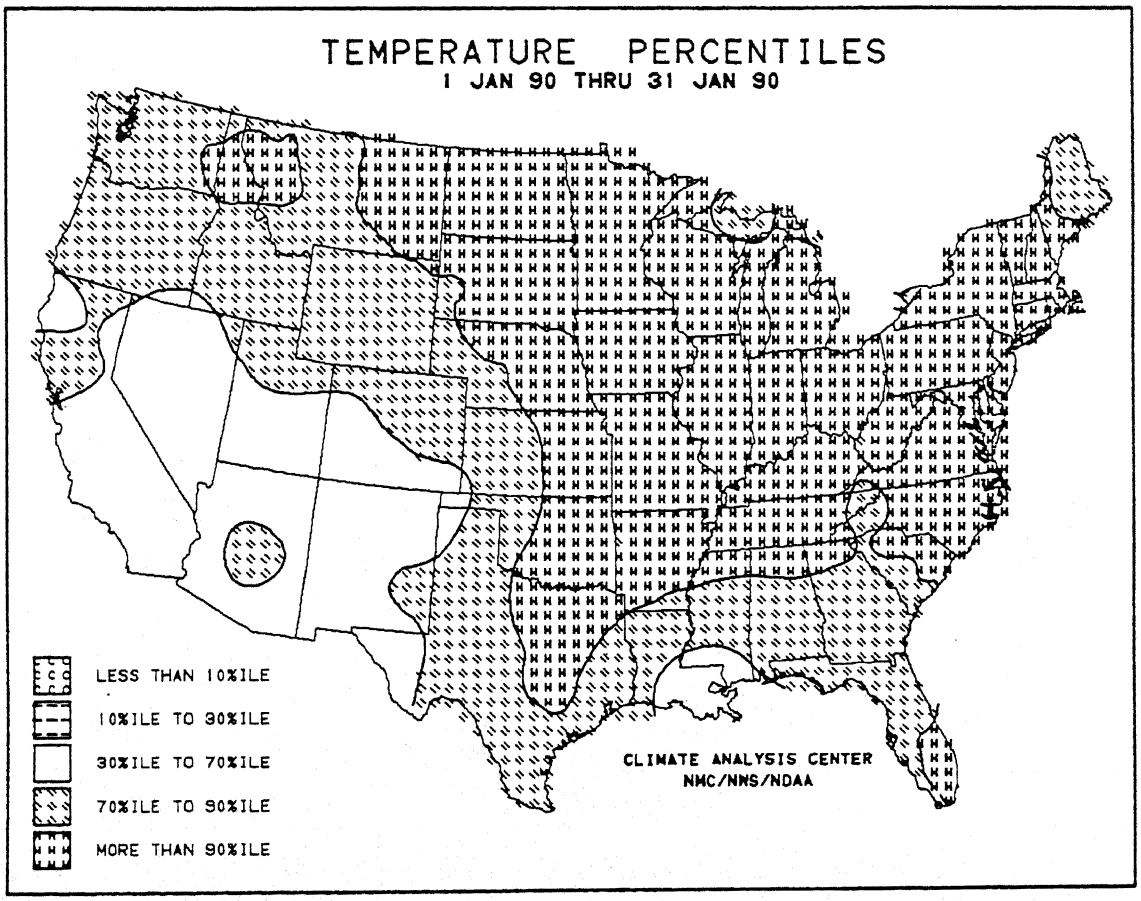


Figure 3. Temperature percentiles for January 1990. After experiencing one of the coldest Decembers on record, particularly east of the Rockies, the lower 48 states recorded the mildest January ever. Except for the southwestern quarter of the nation, the rest of the country recorded exceptionally mild weather as percentiles were well above the 70% level. Most stations in the northern half of the U.S. measured monthly departures in excess of +8°F (see front cover). Very few locations reported subnormal January temperatures.

TABLE 4. JANUARY 1990 AVERAGE TEMPERATURES 1.0°F OR MORE BELOW NORMAL.

STATION	DEPARTURE (°F)	AVERAGE (°F)	STATION	DEPARTURE (°F)	AVERAGE (°F)
BARTER ISLAND, AK	-12.0	-26.7	FARMINGTON, NM	-2.4	27.3
BARROW, AK	-8.6	-22.9	REDDING, CA	-1.6	45.0
BIG DELTA, AK	-6.8	-12.8	BLYTHE, CA	-1.4	52.0
BETTLES, AK	-6.8	-17.5	IMPERIAL, CA	-1.3	54.3
KOTZEBUE, AK	-6.2	-8.9	MCGRATH, AK	-1.1	-11.2
NOME, AK	-3.9	2.0	DAGGETT, CA	-1.1	47.3
BETHEL, AK	-2.5	2.7	FAIRBANKS, AK	-1.0	-12.9

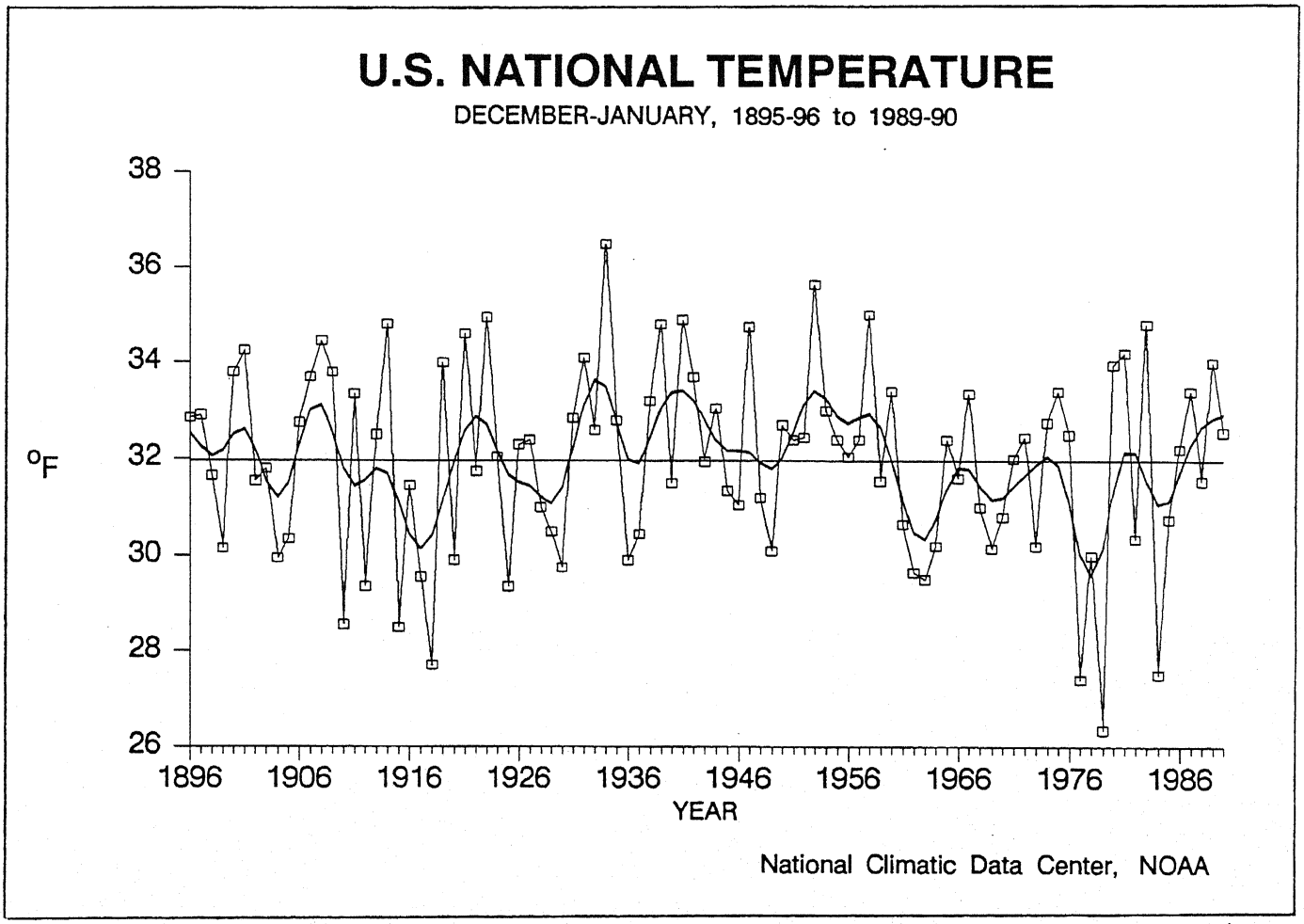


Figure 4. U.S. national average temperatures (°F) for December-January, 1895-96 to 1989-90. So far, the Winter of 1989-1990 has been a season of sharp contrasts. December 1989 ranked as the fourth coldest December nationally since 1895 (and the coldest December in the Northeast, Southeast, and Central regions), while January 1990 was the mildest January on record. As a result, both months have essentially "canceled each other out", resulting in near-normal winter temperatures through January. On a long-term basis, using a nine-point binomial filter to filter out short-term fluctuations, the December-January national temperatures have tended to be cooler than normal the last three decades compared to the middle of the century.

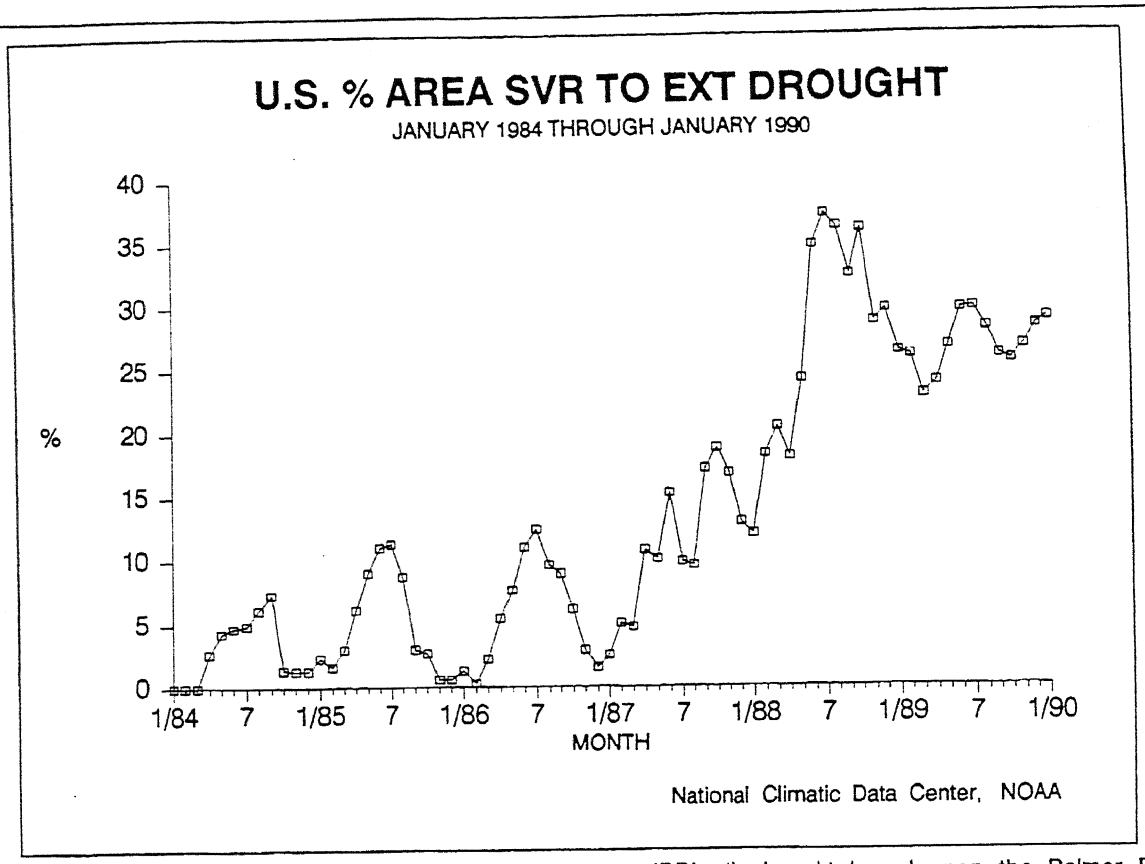


Figure 5. Percent of area in severe (-3>PDI>-4) or extreme (PDI<-4) drought based upon the Palmer Drought Index (PDI) at the end of January 1990. Over a fourth of the country remained in the severe to extreme drought category even though January 1990 national precipitation was close to the median average. The size of the drought area has remained in the 25-30% range since last January.

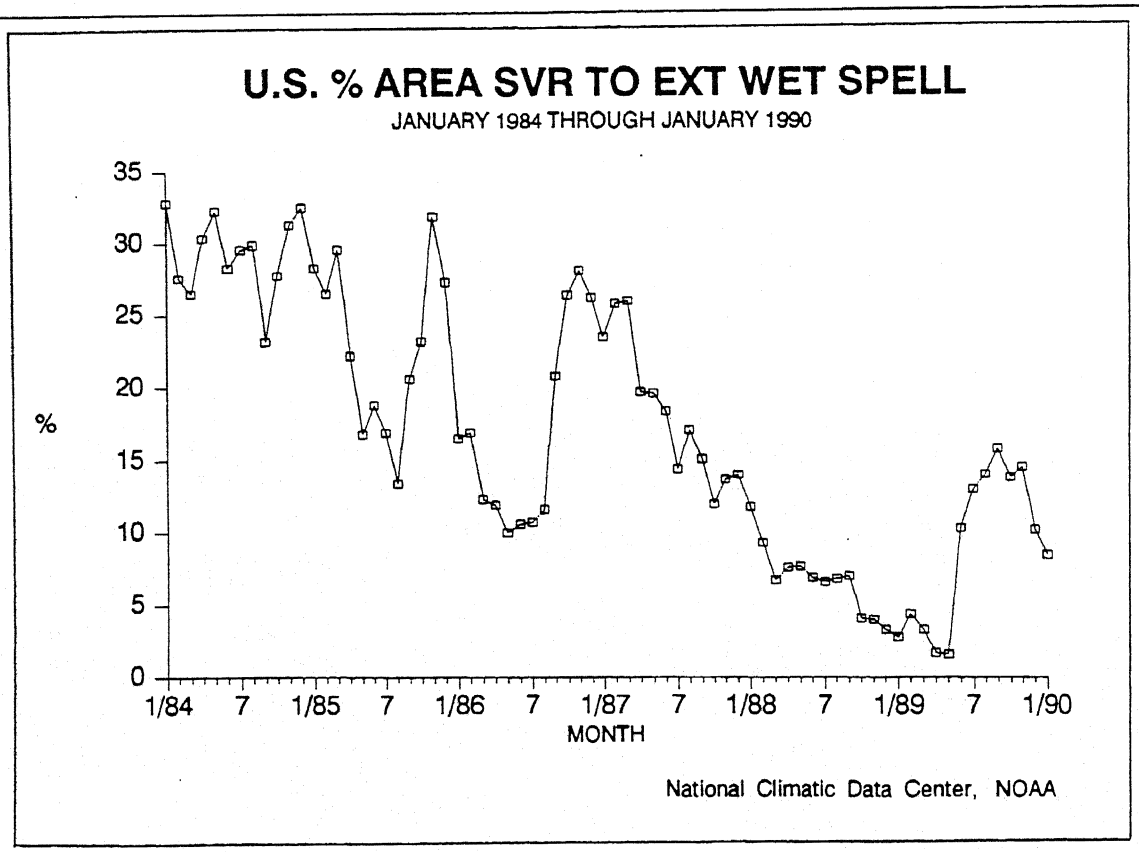


Figure 6. Percent of area unusually wet (PDI>+3) based upon the Palmer Drought Index at the end of January 1990. Less than a tenth of the country observed unusually wet conditions, and this figure has been steadily declining since the autumn.

TABLE 5. RECORD JANUARY AVERAGE TEMPERATURES.

STATION	AVERAGE (°F)	NORMAL (°F)	DEPARTURE (°F)	RECORD TYPE	RECORDS BEGAN
ABERDEEN, SD	25.3	8.1	+17.3	HIGHEST	1951
FARGO, ND	21.7	4.5	+17.3	HIGHEST	1947
HURON, SD	28.2	11.3	+16.9	HIGHEST	1881
BISMARCK, ND	23.5	6.8	+16.7	HIGHEST	1875
ROCHESTER, MN	25.9	9.7	+16.2	HIGHEST	1961
DEVIL'S LAKE, ND	19.6	3.4	+16.2	HIGHEST	1905
SIOUX FALLS, SD	28.2	12.6	+15.7	HIGHEST	1951
WILLISTON, ND	22.8	7.2	+15.7	HIGHEST	1947
MINNEAPOLIS, MN	26.2	11.1	+15.1	HIGHEST	1859
GLASGOW, MT	23.2	8.4	+14.8	HIGHEST	1956
WATERLOO, IA	29.1	14.4	+14.8	HIGHEST	1951
ST. CLOUD, MN	21.9	7.3	+14.6	HIGHEST	1893
SIOUX CITY, IA	30.4	16.3	+14.0	HIGHEST	1951
NORFOLK, NE	31.5	17.6	+13.9	HIGHEST	1951
LA CROSSE, WI	28.0	14.4	+13.7	HIGHEST	1952
CHICAGO/O'HARE, IL	34.0	20.3	+13.7	HIGHEST	1959
INTERNATIONAL FALLS, MN	13.5	0.3	+13.1	HIGHEST	1947
BURLINGTON, VT	29.8	16.7	+13.1	HIGHEST	1947
GRAND ISLAND, NE	33.8	20.8	+13.0	HIGHEST	1944
DUBUQUE, IA	28.8	15.8	+13.0	HIGHEST	1951
SPRINGFIELD, IL	37.0	24.1	+13.0	HIGHEST	1954
VALENTINE, NE	30.7	18.3	+12.4	HIGHEST	1886
GREEN BAY, WI	26.4	14.2	+12.2	HIGHEST	1947
MILWAUKEE, WI	31.1	19.2	+11.9	HIGHEST	1947
ROCKFORD, IL	30.0	18.5	+11.5	HIGHEST	1951
LANSING, MI	31.8	20.5	+11.3	HIGHEST	1959
FT. WAYNE, IN	34.9	23.5	+11.3	HIGHEST	1951
ERIE, PA	36.0	24.8	+11.2	HIGHEST	1954
EVANSVILLE, IN	41.9	30.9	+11.0	HIGHEST	1951
TULSA, OK	46.0	35.2	+10.8	HIGHEST	1951
TOLEDO, OH	34.3	23.5	+10.8	HIGHEST	1951
SOUTH BEND, IN	34.0	23.4	+10.6	HIGHEST	1944
KANSAS CITY/INTL., MO	37.9	27.7	+10.3	HIGHEST	1947
MOLINE, IL	30.0	19.8	+10.3	HIGHEST	1947
FLINT, MI	31.8	21.6	+10.3	HIGHEST	1951
DAYTON, OH	37.0	27.0	+10.1	HIGHEST	1951
BINGHAMTON, NY	31.5	21.4	+10.1	HIGHEST	1952
SAULT STE. MARIE, MI	23.5	13.5	+10.0	HIGHEST	1947
OKLAHOMA CITY, OK	45.9	36.0	+9.9	HIGHEST	1947
LEXINGTON, KY	41.5	31.6	+9.9	HIGI	
SPRINGFIELD, MO	41.4	31.5	+9.9	HI	
ROCHESTER, NY	33.6	23.7	+9.9	H	
WICHITA, KS	39.6	29.8	+9.8		
WILKES-BARRE, PA	35.2	25.5	+9.7		
ALLENTOWN, PA	37.0	27.3	+9.7		
GRAND RAPIDS, MI	32.2	22.5	+9.7		
WASHINGTON/DULLES, VA	40.3	30.7	+9.5		
BALTIMORE, MD	42.1	32.7	+9.4		
NEW YORK/LA GUARDIA, NY	41.2	32.0	+9.2		
HARTFORD, CT	34.7	25.5	+9.2		
NEWARK, NJ	40.5	31.5	+9.0		
MUSKEGON, MI	32.2	23.2	+9.0		
PORTLAND, ME	30.2	21.6	+8.6		
CONCORD, NH	28.6	20.1	+8.5		
HARRISBURG, PA	38.1	29.7	+8.4		
PROVIDENCE, RI	36.3	28.6	+7.7		
MIAMI, FL	74.3	67.1	+7.2		
BRIDGEPORT, CT	36.7	29.7	+7.0		
BOSTON/LOGAN, MA	36.3	29.5	+6.8		

TABLE 6. RECORD JANUARY PRECIPITATION.

STATION	TOTAL (INCHES)	NORMAL (INCHES)	PCT. OF NORMAL	RECORD TYPE	RECORDS BEGAN
EUGENE, OR	15.09	8.37	180.3	HIGHEST	1951
MONTGOMERY, AL	10.16	4.18	243.1	HIGHEST	1951
DEVIL'S LAKE, ND	0.02	0.55	3.6	LOWEST	1905
KEY WEST, FL	0.00	1.71	0.0	LOWEST	1886

Note: Trace precipitation is considered no precipitation. Stations with no precipitation are only included if normal precipitation is 0.25 inches or more.

TABLE 7. RECORD JANUARY EXTREME TEMPERATURES.

STATION	EXTREME (°F)	DATE	RECORD TYPE	RECORDS BEGAN
TAMPA, FL	85	20 JAN 90	HIGHEST	1941
GRAND ISLAND, NE	76	10 JAN 90	HIGHEST	1939
CONCORDIA, KS	74	10 JAN 90	HIGHEST	1963
LINCOLN, NE	73	10 JAN 90	HIGHEST	1971
NORTH PLATTE, NE	73	10 JAN 90	HIGHEST	1948
COLUMBIA, MO	69	16 JAN 90	HIGHEST	1969
BOSTON/LOGAN, MA	63	18 JAN 90	HIGHEST	1936

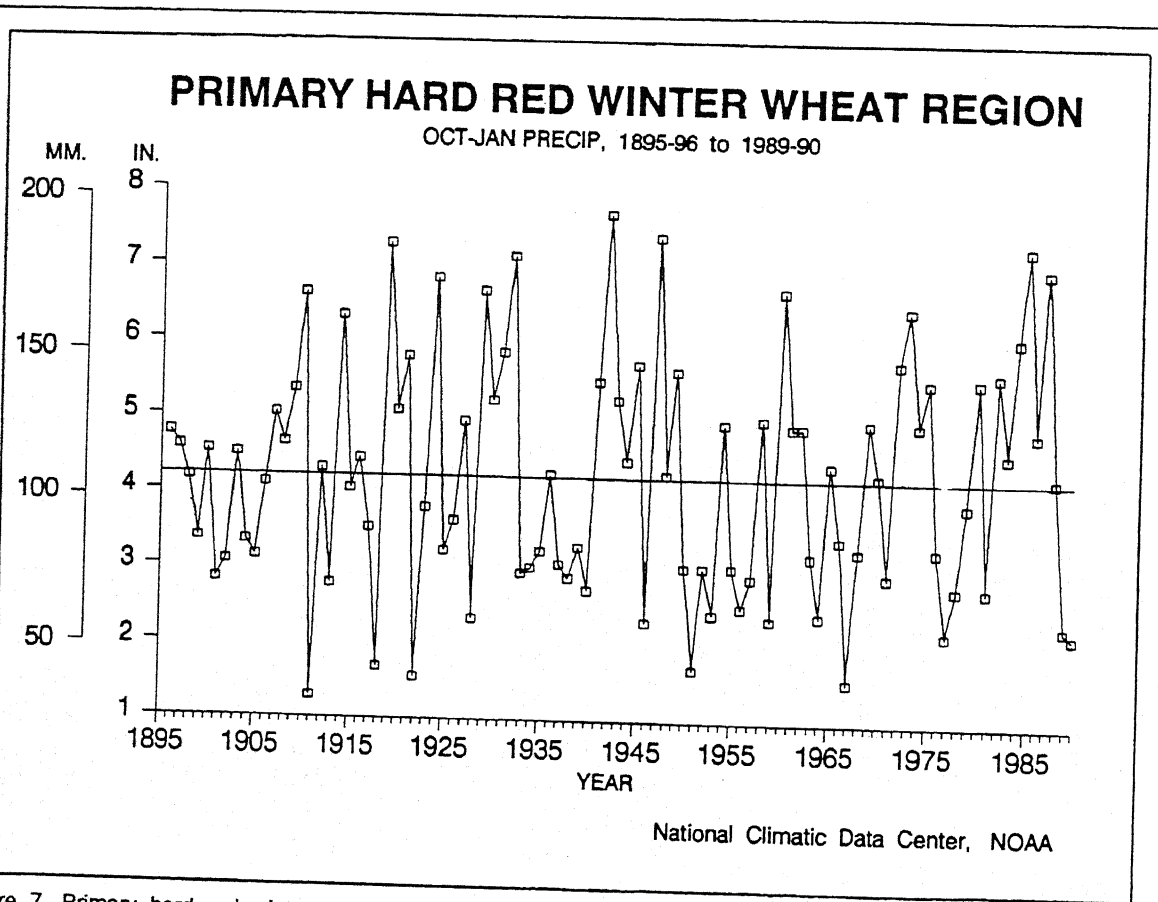


Figure 7. Primary hard red winter wheat region October-January precipitation from 1895-96 to 1989-90. This area approximately covers the panhandles of Texas and Oklahoma, all of Kansas, southern Nebraska, and eastern Colorado (see WCB #89/47, page 12 for map). Although long-term moisture conditions for the winter wheat belt are not very extreme, the last four months have been exceptionally dry. Combined October 1989-January 1990 precipitation was ranked as the seventh driest on record. Even though the January 1990 precipitation was well above normal in the area, it was not enough to compensate for the minimal Oct.-Dec. 1989 precipitation.